1. Secretion of aldosterone is primarily mediated by:

   A. ACTH.
   B. renin.
   C. serum potassium level.
   D. sodium concentration in the proximal tubule.
   E. sodium concentration in the collecting duct.

2. The drug that blocks peripheral androgen action during chronic administration is:

   A. ketoconazole.
   B. alcohol.
   C. cimetidine.
   D. marijuana.
   E. leuprolide.

3. In women with invasive carcinoma of the proximal urethra, the primary lymphatic site for metastatic disease is:

   A. superficial inguinal.
   B. deep inguinal.
   C. external iliac.
   D. hypogastric.
   E. obturator.

4. The effect of finasteride on serum and intraprostatic testosterone is:

	Serum Testosterone	**Intraprostatic Testosterone**
A.	↑	↑
B.	↔	↔
C.	↓	↓
D.	↑	↓
E.	↔	↑

5. A 48-year-old man and his 44-year-old wife wish to have another child. Fifteen years previously he had a vasectomy and four years ago he failed vasectomy reversal. No sperm were found in the vas at the time of surgery. The wife's menses are regular. The best chance for pregnancy is:

   A. open epididymal aspiration with IVF and intracytoplasmic sperm injection.
   B. needle aspiration of the testicle with IVF and intracytoplasmic sperm injection.
   C. gynecologic evaluation of wife then bilateral vasoepididymostomy if her evaluation is normal.
   D. donor eggs and needle aspiration of the testicle with IVF and intracytoplasmic sperm injection.
   E. re-do microscopic two-layer vasovasostomy.

6. A 55-year-old man with epigastric discomfort has a 5 cm right adrenal mass on CT scan. The mass measures -40 Hounsfield units. The next step is:

A. no treatment.
B. MRI scan.
C. 24-hour urine for metanephrines.
D. dexamethasone suppression test.
E. right adrenalectomy.

7. Reflex bladder and urethral activity are coordinated by a reflex center located in the:

A. sacral cord.
B. thoracic and sacral cord.
C. pons.
D. medulla.
E. basal ganglia.

8. A 34-year-old man requests repair of his left-sided varicocele. Microsurgical varicocelectomy will likely result in:

A. increased testicular volume.
B. no change in testicular volume.
C. increased semen fructose.
D. increased ejaculate volume.
E. decreased semen pH.

9. The advantage of a non-refluxing ureterointestinal anastomosis is that it decreases:

A. upper tract colonization.
B. ureterointestinal stricture.
C. pressure transmission to the upper urinary tract.
D. metabolic abnormalities.
E. stone formation.

10. During bladder filling, intraluminal ureteral pressure:

A. increases, and the frequency of contractions increase.
B. increases, and the frequency of contractions decrease.
C. increases, and the frequency of contractions is unchanged.
D. decreases once the frequency of contractions decrease.
E. remains stable while ureteral contractions decrease.

11. A 45-year-old man with multiple bilateral renal masses and a family history of renal and cerebellar tumors is likely to have:

A. unilateral absence of the vas deferens.
B. bilateral absence of the vas deferens.
C. aplasia of the seminal vesicles.
D. epididymal cysts.
E. epididymal agenesis.

12. Five years after a radical cystectomy and ileal conduit for bladder cancer, a 65-year-old man has a serum creatinine of 2.5 mg/dl, BUN 40 mg/dl, sodium 146 mEq/l, potassium 4.6 mEq/l, and bicarbonate 16 mEq/l. A loopogram shows a 35 cm long moderately dilated conduit with reflux into dilated upper tracts. The most appropriate treatment is:

A. sodium bicarbonate orally.
B. balanced citrate solution orally.
C. conversion to a non-refluxing colon conduit.
D. revision of conduit length and stoma.
E. revision of ureteroileal anastomoses.

13. The condition that leads to a decrease in circulating blood volume is:

A. reduced renal arterial pressure.
B. angiotensin II excess.
C. catecholamine excess.
D. hepatic venous congestion.
E. hyperaldosteronism.

14. A 55-year-old woman recovering from an exacerbation of her multiple sclerosis develops an acute UTI while on clean intermittent catheterization. The agent to avoid in treating this infection is:

A. trimethoprim-sulfamethoxazole.
B. nitrofurantoin.
C. cephalexin.
D. ampicillin.
E. ciprofloxacin.

15. A 55-year-old woman undergoes a radical cystectomy and Indiana pouch. One year later, she has leakage between catheterizations, which she performs every three hours. Urodynamics reveals a pouch capacity of 200 ml and contractions to 55 cm H_2O which are associated with leakage. The next step is:

A. oral oxybutinin.
B. oral metoclopramide.
C. pouch irrigations with oxybutinin.
D. pouch augmentation.
E. creation of intussucepted nipple valve.

16. Administration of I.V. mannitol prior to renal artery occlusion for partial nephrectomy helps prevent tissue damage by:

A. increasing cellular pH.
B. preventing cellular edema.
C. inhibition of Na/K ATPase.
D. preventing lactic acidosis.
E. limiting intracellular calcium influx.

17. During the course of a radical cystectomy, a rectal injury is primarily repaired. Three days postoperatively, the patient becomes septic. Physical examination reveals a tender surgical wound. The adjacent skin is edematous and has a bronze discoloration. Gram strain of the wound aspirate reveals gram-positive, club-shaped organisms. The next steps are surgical drainage and:

A. penicillin.
B. gentamicin.
C. fluconazole.
D. metronidazole.
E. tetracycline.

18. A 60-year-old man is undergoing a radical cystectomy for a 3 cm invasive bladder cancer at the dome, with a planned continent neobladder diversion. At surgery the pelvic lymph nodes reveal microscopic metastatic cancer on frozen section. The next step is:

A. abort procedure; follow with systemic chemotherapy.
B. cystectomy and ileal conduit.
C. cystectomy and neobladder if apical margins are negative.
D. abort the procedure; perform an ileal conduit diversion only.
E. perform partial cystectomy and follow with chemoradiation.

19. Bicarbonate (HCO_3) is reclaimed from the glomerular filtrate primarily by proximal tubular:

A. hydrogen ion secretion.
B. HCO_3 - active transport.
C. sodium excretion.
D. potassium excretion.
E. water reabsorption.

20. A 35-year-old, insulin-dependent, diabetic woman with a normal serum creatinine is treated with ampicillin for acute right pyelonephritis. Additional medications include propranolol, acetaminophen, and diazepam. On the seventh day of treatment, her temperature increases to 103° F, and she develops a generalized pruritic skin rash. Her WBC count is 9500/cu mm with 8% eosinophils. Urinalysis reveals RBC casts, 3+ proteinuria, and no bacteria. The serum creatinine is now 3.4 mg/dl. The blood sugar is 150 mg/dl. The change in this patient's clinical condition is most likely related to:

A. insulin.
B. diazepam.
C. ampicillin.
D. propranolol.
E. acetaminophen.

21. A 57-year-old man has high drain output seven days following radical cystectomy and orthotopic urinary diversion. His serum creatinine is 1.5 mg/dl, and his urine output remains good via his indwelling Foley catheter. The drain fluid reveals a creatinine of 1.6 mg/dl. The next step is:

A. observation.
B. replace Foley catheter.
C. suprapubic tube placement.
D. bilateral percutaneous nephrostomies.
E. exploration with repair of leak.

22. The most common acid-base disturbance that occurs in a patient with an ileal conduit urinary diversion is:

A. hyperkalemic; hyperchloremic; metabolic acidosis.
B. hyponatremic; hypochloremic; metabolic acidosis.
C. hypochloremic; hypokalemic; metabolic alkalosis.
D. hypokalemic; hyperchloremic; metabolic acidosis.
E. hyponatremic; hypochloremic; metabolic alkalosis.

23. A 48-year-old man with genitourinary tuberculosis has a 4 cm distal ureteral stricture. He is treated with ureteral stent placement and pyrazinamide, isoniazid, and rifampin. After six weeks of treatment, no improvement in the extent or length of the ureteral stricture is noted. The next step is:

A. prednisone.
B. observation.
C. ureteroneocystostomy.
D. add streptomycin.
E. psoas hitch.

24. A 58-year-old woman underwent cystectomy and Kock cutaneous urinary reservoir 12 years previously. She is having difficulty catheterizing and persistent urinary infections. A pouchogram shows a 4 cm stone overlying the efferent limb of the pouch, and an IVP shows normal upper tracts. The next step is:

A. SWL.
B. endoscopic lithotripsy via the stoma.
C. percutaneous endoscopic lithotripsy.
D. open stone extraction.
E. pouch irrigation with Renacidin.

25. Duloxetine is useful for incontinence because it:

A. decreases detrusor activity.
B. increases neural activity of the intrinsic urethral sphincter.
C. increases neural activity of the external urethral sphincter.
D. increases neural activity of the external urethral sphincter and decreases detrusor activity.
E. increases neural activity of the intrinsic urethral sphincter and decreases detrusor activity.

26. The most common cause of catheter-associated urinary tract infection is:

A. improper catheterization technique.
B. urethral meatal bacteria.
C. break in the drainage system.
D. urinary drainage bag bacteria.
E. bacterial antimicrobial resistance.

27. A 54-year-old man with prostate cancer has skeletal metastases. Three months after beginning LH-RH agonist therapy, his PSA is undetectable. The likelihood of developing further bone pathology is best reduced with which of the following:

A. finasteride.
B. Vitamin E and selenium.
C. biclutamide.
D. estramustine.
E. zoledronic acid.

28. Nocturia associated with obstructive sleep apnea is caused by:

A. increased cortisol.
B. increased atrial natriuretic peptide.
C. decreased arginine vasopressin.
D. decreased angiotensin II.
E. increased antidiuretic hormone.

29. A 31-year-old woman has acute cystitis. The most appropriate treatment is three days of:

A. fosfomycin.
B. nitrofurantoin.
C. ampicillin.
D. cefazolin.
E. trimethoprim-sulfamethoxazole.

30. A 64-year-old man has persistent cutaneous urinary drainage of 300-400 ml per day four weeks following cystectomy and ileal conduit. An IVP shows urinary extravasation at the site of the right ureteroileal anastomosis. The best management is:

A. revision of ureteroileal anastomosis.
B. percutaneous placement of a nephroureteroileal stent.
C. catheter drainage of the conduit.
D. looposcopy and retrograde stent placement.
E. observation.

31. A 36-year-old woman with cerebral palsy develops urgency incontinence with severe perineal skin ulceration. Urodynamics show a 200 cc capacity bladder with uninhibited contractions. Abdominal leak point pressure is 110 cm water. She has failed anticholinergics. Due to her body habitus, clean intermittent catheterization is not possible. The best management is:

A. detrusor myomectomy.
B. ileal conduit.
C. Indiana pouch.
D. bladder augmentation with catheterizable abdominal stoma.
E. bladder augmentation with fascial sling.

32. Which drug may result in a false positive screening test for urinary opiates:

A. ampicillin.
B. cephalexin.
C. trimethoprim.
D. levofloxacin.
E. nitrofurantoin.

33. A 33-year-old woman develops gross hematuria requiring multiple transfusions four weeks after a percutaneous nephrolithotomy. The next step is:

A. observation.
B. renal arteriogram.
C. CT scan.
D. exploration and repair.
E. nephrectomy.

34. During a Burch colposuspension, lateral suture placement into Cooper's ligament may injure the:

A. femoral nerve.
B. femoral artery.
C. femoral vein.
D. obturator nerve.
E. pudendal nerve.

35. A 22-year-old woman with recurrent febrile E. coli UTIs wants to become pregnant. IVP shows a normal left kidney and an atrophic, scarred right kidney with less than 5% function on a DMSA scan. VCUG shows no reflux. The next step is:

A. indium-labeled WBC scan.
B. preventive antimicrobial therapy.
C. bilateral ureteral catheterization with cultures.
D. fluorescent bacterial antibody testing.
E. right nephrectomy.

36. A 67-year-old man has a rectoprostatic fistula one year after interstitial and external beam radiation for localized prostatic cancer. An initial fulguration failed and three months ago, he had a proximal colostomy. He continues to have urine leakage per rectum and recurrent urinary infections. Biopsy of the prostate shows no cancer and serum PSA is 0.3 ng/ml. The best treatment is:

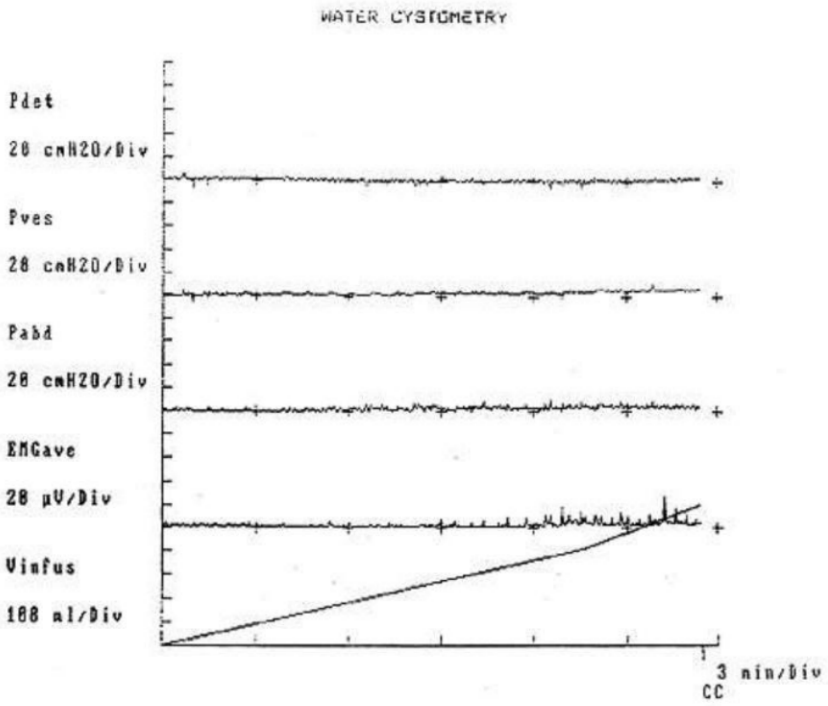
A. suprapubic cystotomy.
B. transabdominal repair.
C. urinary diversion.
D. salvage prostatectomy.
E. posterior transanal repair.

37. Trimethoprim, nitrofurantoin, and cephalexin are effective for the prevention of frequent urinary reinfections in adult women when administered in chronic low dosage because each is:

A. concentrated in the urine.
B. concentrated in the vaginal fluid.
C. completely absorbed in the upper gastrointestinal tract.
D. capable of reducing fecal uropathogens.
E. associated with no significant side effects during long term administration.

38. A 70-year-old neurologically normal woman has random, large volume urinary incontinence. Medical history is significant for a hysterectomy 20 years ago. Urinalysis is normal and postvoid residual is 40 ml. The filling CMG is shown (see figure). No urinary leakage is noted with Valsalva maneuver. The most likely cause of her incontinence is:

A. overflow.
B. detrusor instability.
C. detrusor hyperactivity with impaired contractility.
D. intrinsic sphincter deficiency.
E. vesicovaginal fistula.



39. A 65-year-old woman has vaginal leakage of urine three years after radiation for cervical carcinoma. IVP reveals normal upper urinary tracts, and a methylene blue test confirms the presence of a vesicovaginal fistula. The next step is:

A. suprapubic tube.
B. fulguration of fistula.
C. biopsy of fistula.
D. vaginal repair with labial fat flap.
E. transabdominal repair with omental flap.

40. A patient has stress urinary incontinence one year after radical retropubic prostatectomy. However, stress incontinence observed on physical examination is not documented during an abdominal leak point pressure determination under fluoroscopy. The test was performed using a 12 Fr urethral catheter at a volume of 200 cc. The most likely explanation for the false negative leak point pressure is:

A. insufficient volume instilled.
B. urethral catheter is too large.
C. involuntary bladder contraction.
D. poor Valsalva effort.
E. impaired contractility.

41. A 33-year-old man has active genitourinary tuberculosis. His community has a 12% incidence of INH-resistant Mycobacterium. The best initial treatment is INH and:

A. rifampin.
B. rifampin, pyrazinamide.
C. rifampin, pyrazinamide, ethambutol.
D. rifampin, streptomycin.
E. pyrazinamide, streptomycin.

42. A 14-year-old boy involved in an MVA has an injury to the conus medullaris. His neurologic examination will reveal:

	Bulbocavernosus reflex	**Deep tendon reflexes**	**Skin sensation of genitalia**
A.	absent	increased	absent
B.	absent	absent	absent
C.	absent	absent	normal
D.	present	increased	normal
E.	present	absent	absent

43. An 81-year-old woman with nocturnal enuresis is treated with DDAVP (desmopressin). After ten days of treatment, she develops mental confusion and subsequently has a seizure. The next step is:

A. serum desmopressin level.
B. serum potassium.
C. serum sodium.
D. head CT scan.
E. lumbar puncture.

44. A 28-year-old woman with asymptomatic bacteriuria is 27 weeks pregnant. A urine culture is positive for E. coli. The most frequent complication of failure to treat bacteriuria is:

A. acute renal failure.
B. premature birth.
C. perinephric abscess.
D. eclampsia of pregnancy.
E. spontaneous abortion.

45. Non-neurogenic neurogenic bladder is characterized by:

A. high intravesical pressure with poor compliance.
B. detrusor areflexia with detrusor internal sphincter dyssynergia.
C. detrusor areflexia and low urethral closing pressure.
D. uninhibited contractions with detrusor external sphincter dyssynergia.
E. uninhibited contractions with detrusor internal sphincter dyssynergia.

46. Anticholinergic agents for bladder overactivity would most likely exacerbate which of the following:

A. narrow-angle glaucoma.
B. ulcerative colitis.
C. asthma.
D. myasthenia gravis.
E. hyperhydrosis.

47. A 69-year-old man with newly diagnosed Stage D_2 prostate cancer develops significant back discomfort in the L 3-4 area which is a site of known metastases. The quickest method to pharmacologically establish a castrate state is:

A. megestrol acetate.
B. GnRH agonist plus flutamide.
C. ketoconazole.
D. DES.
E. suramin.

48. While performing a videourodynamic study in a three-year-old child, the recommended rate of bladder filling is:

A. 10 ml/min.
B. 20 ml/min.
C. 30 ml/min.
D. 40 ml/min.
E. 50 ml/min.

49. A 68-year-old man on testosterone replacement for hypogonadism has lower extremity deep venous thrombosis, splenomegaly and a hematocrit of 54. His PSA is 7.5. The most appropriate treatment is to discontinue testosterone, start anticoagulation and:

A. phlebotomize.
B. leuprolide.
C. bicalutamide.
D. perform bone marrow biopsy.
E. perform splenectomy.

50. Stress-related cortisol production comes from the:

A. zona glomerulosa.
B. zona fasciculata.
C. zona reticularis.
D. entire adrenal cortex.
E. adrenal medulla.

51. An eight-year-old boy with acute lymphocytic leukemia undergoes chemotherapy. His urine output during the last 24 hours is 50 cc. Serum creatinine is 2.1 mg/dl, BUN 40 mg/dl, and uric acid 8.5 mg/dl. Renal ultrasound demonstrates normal sized kidneys with no hydronephrosis and increased echogenicity. The next step is:

A. isotope renogram.
B. renal biopsy.
C. retrograde pyelography.
D. allopurinol.
E. hydration and urinary alkalinization.

52. A man with impotence secondary to hyperprolactinemia from a small pituitary adenoma does not improve on oral bromocriptine treatment despite normalization of the serum prolactin level. The next step is:

A. CT scan of the sella turcica.
B. parenteral bromocriptine.
C. serum testosterone level.
D. pituitary surgery.
E. parenteral dopamine.

53. Hemorrhage during bilateral total adrenalectomy is more likely to occur on the:

A. left because of multiple veins.
B. right because of multiple veins.
C. left because the main adrenal vein joins the left renal vein.
D. right because the short adrenal vein enters directly into the vena cava.
E. left because of the proximity of the spleen.

54. Which of the following suggest an increased risk of genitourinary abnormality in the neonate:

A. newborn serum creatinine of 1.2 mg/dl.
B. maternal insulin-dependent diabetes.
C. maternal hypertension.
D. no urine from infant in first 20 hours.
E. maternal history of multicystic kidney.

55. A 45-year-old man with a history of hypertension and significant tobacco abuse is impotent one year following a crush injury to the pelvis. A penile arteriogram reveals unilateral focal occlusion of the internal pudendal artery. Treatment should be:

A. intracavernous vasoactive injections.
B. dorsal venous ligation.
C. percutaneous angioplasty.
D. arterial revascularization.
E. penile prosthesis.

56. A 71-year-old man with a history of aortoiliac reconstruction has left flank pain. A noncontrast CT scan reveals obstruction of the left ureter at the pelvic brim. The most likely cause of the obstruction is:

A. compression from an anteriorly placed graft.
B. pseudoaneurysm formation.
C. retroperitoneal fibrosis.
D. ligation of the ureter.
E. ischemia of the ureter.

57. A 15-year-old boy has hypertension associated with a solitary kidney and renal artery stenosis. His hypertension is most likely characterized by:

	Plasma Renin Activity	**BP Response to Angiotensin II Antagonists**
A.	↑	↔
B.	↑	↓
C.	↑	↑
D.	↓	↔
E.	↓	↓

58. A 30-year-old man with a recent diagnosis of end-stage renal disease due to membranous glomerulonephritis develops impotence. The best long-term management of his impotence is:

A. testosterone.
B. vacuum erection device.
C. renal transplantation.
D. sildenafil.
E. intracavernous injections.

59. A 26-year-old woman has persistent mild left flank discomfort six months after a percutaneous endopyelotomy for severe hydronephrosis from a ureteropelvic junction obstruction. Ultrasound reveals the hydronephrosis is unchanged and a diuretic renogram reveals a T1/2 of 27 minutes. Optimal treatment is:

A. observation.
B. repeat percutaneous endopyelotomy.
C. retrograde endopyelotomy.
D. pyeloplasty.
E. chronic ureteral stent.

60. A nine-year-old boy has intermittent gross, painless hematuria. Urinalysis is normal except for numerous red cells without casts. Urine culture and sonogram are negative. A percutaneous renal biopsy shows segmental glomerulonephritis with immunoglobulin deposition in mesangial areas. The diagnosis is:

A. Alport's syndrome.
B. Henoch-Schönlein purpura.
C. membranous glomerulonephritis.
D. IgA nephropathy.
E. hemolytic uremic syndrome.

61. Compared to primary penile prosthesis insertion, prosthesis revision is associated with an increased risk of:

A. infection.
B. mechanical failure.
C. erosion.
D. persistent penile pain.
E. hemorrhage.

62. An 18-year-old boy has a 1.5 cm urethral stricture several years following a straddle injury. The best treatment is:

A. urethral dilation.
B. visual internal urethrotomy.
C. visual internal urethrotomy with mesh stent.
D. primary urethral anastomosis.
E. patch flap urethroplasty.

63. An eight-year-old, 25 kg boy with pyelonephritis has vomiting and diarrhea for three days. Serum electrolytes are: Na 150 mEq/l, K 3.0 mEq/l, Cl 117 mEq/l, HCO_3 25 mEq/l. The most appropriate intravenous therapy for the first 24 hours is:

A. 0.25 NS with 40 mEq/l of KCl at 100 cc/hr.
B. D5W with 40 mEq/l of KCl at 200 cc/hr.
C. NS with 40 mEq/l of KCl at 100 cc/hr.
D. NS with 40 mEq/l of KCl at 75 cc/hr.
E. D5W with 10 mEq/l of KCl at 200 cc/hr.

64. Hypoactive sexual desire disorder in postmenopausal women is best treated with:

A. estrogens.
B. testosterone.
C. testosterone and estrogen.
D. dehydroepiandrosterone (DHEA).
E. sildenafil.

65. A 20-year-old man sustains a circumferential avulsion of the skin of the mid-shaft of the penis. There is intact skin on both the proximal and distal aspects of the penile shaft, with a denuded area 4 cm in length. The most appropriate treatment is:

A. primary approximation of the skin.
B. split thickness skin graft to the denuded area.
C. split thickness skin graft and removal of distal penile skin.
D. full thickness skin graft to the denuded area.
E. scrotal rotational flap covering the denuded area.

66. Stabilization of the myocardium during life-threatening hyperkalemia associated with loss of P waves and widening of the QRS complex on the electrocardiogram is best accomplished using:

A. calcium gluconate intravenously.
B. $NaHCO_3$ intravenously.
C. 10% glucose with regular insulin.
D. potassium exchange resin with sorbitol.
E. hemodialysis.

67. The organism most frequently associated with penile prosthetic infections is:

A. E. coli.
B. Staphylococcus epidermidis.
C. Staphylococcus aureus.
D. Enterococcus faecalis.
E. group B streptococcus.

68. A 45-year-old woman has right flank pain. CT scan shows a right perirenal hematoma. The most likely underlying cause is:

A. renal adenocarcinoma.
B. renal angiomyolipoma.
C. renal artery aneurysm.
D. polyarteritis nodosa.
E. complex renal cyst.

69. An oliguric patient has a spot urine sodium of 8 mEq/l. The condition most consistent with this laboratory finding is:

A. prerenal azotemia.
B. acute tubular necrosis.
C. chronic pyelonephritis.
D. renal tubular acidosis.
E. acute urinary obstruction.

70. In men with multiple sclerosis, the urodynamic finding that predicts upper tract deterioration is:

A. detrusor hyperreflexia.
B. impaired contractility.
C. elevated voiding pressure.
D. detrusor areflexia.
E. detrusor-striated sphincter dyssynergia.

71. A 35-year-old woman has severe pain at the right lower quadrant trocar site three days after a right laparoscopic pyeloplasty. She has a low grade fever, normal bowel sounds, mild abdominal distension with tenderness at the trocar site, and a WBC of 2,900/cu mm. The most likely diagnosis is:

A. port site hernia.
B. port site infection.
C. urinoma.
D. intraperitoneal bleed.
E. bowel injury.

72. A 30-year-old man with diabetes insipidus has been NPO for 16 hours. He becomes confused, lethargic, and hyperreflexic. The initial fluids given should be:

A. lactated Ringers.
B. D5W.
C. D5W/.2NS.
D. D5W/.45NS.
E. 3% saline.

73. In a paraplegic man with a T-12 spinal cord transection, the major complication of external urethral sphincterotomy is:

A. significant hemorrhage.
B. acute urinary tract sepsis.
C. priapism.
D. impotence.
E. autonomic dysreflexia.

74. A 23-year-old man notes a cracking noise and subsequent penile pain during intercourse, followed by progressive penile swelling and ecchymosis. He is initially embarrassed to seek medical attention despite the persistent penile pain. Thirty-six hours after the traumatic event, he is afebrile with stable vital signs. A retrograde urethrogram is normal. The next step is:

A. reassurance and cold compresses.
B. cavernosal-spongiosal shunt.
C. surgical exploration.
D. Foley catheter splinting.
E. corporeal aspiration and Foley catheter drainage.

75. A 4 kg, seven-day-old boy undergoes a left nephrectomy. The blood loss is 40 ml. Two hours postoperatively, the BP is 70/40 mm Hg, pulse rate is 125, and hemoglobin is 11.0 g. He has made 8 cc of urine since surgery. The most appropriate management is:

A. transfuse 10 ml/kg PRBCs.
B. give 10 ml/kg 5% albumin.
C. bolus with 100 ml Ringer's lactate.
D. place a central venous catheter.
E. continue maintenance fluids.

76. A 55-year-old man has urinary retention after abdominoperineal resection for carcinoma. By the third postoperative week, he is voiding small amounts with diurnal incontinence. He has a residual of 300 ml. Prior to the surgical procedure, he had an enlarged prostate on rectal examination and mild LUTS. The next step is:

A. cystoscopy.
B. urodynamics.
C. clean intermittent catheterization.
D. TURP.
E. bethanechol.

77. The chemotherapeutic agent most likely to be associated with increased toxicity because of reabsorption from an ileal neobladder is:

A. methotrexate.
B. gemcitabine.
C. vincristine.
D. doxorubicin.
E. cisplatinum.

78. A four-year-old boy with posterior urethral valves has a vesicostomy. Serum creatinine is 0.6 mg/dl. Ultrasound shows minimal hydronephrosis. Videourodynamics show a bladder capacity of 30 cc with a pressure of 14 cm H_2O when leakage occurs from the vesicostomy with no reflux. Undiversion is considered. The best management is resection of the posterior urethral valves and:

A. ileal augmentation cystoplasty.
B. ileal augmentation with appendicovesicostomy.
C. bladder cycling via the vesicostomy.
D. primary closure of the vesicostomy.
E. autoaugmentation cystoplasty.

79. A unique pharmacological property of imipramine compared to oxybutynin is:

A. alpha-blocker effect.
B. muscarinic subtype selectivity.
C. antispasmodic effect.
D. anesthetic-like activity.
E. anticholinergic activity.

80. A 55-year-old woman has Grade II, Stage T1 transitional cell carcinoma of the bladder. The abnormality most likely to predict progression to invasive disease is:

A. 17p chromosomal deletion.
B. 17q chromosomal deletion.
C. increased p53 immunostaining.
D. decreased p53 immunostaining.
E. c ERB 2 overexpression.

81. Compared to other children with bladder exstrophy, those who undergo prepubertal intestinal bladder augmentation are:

A. more likely to have nocturnal enuresis.
B. less likely to have bladder calculi.
C. more likely to be short in stature.
D. more likely to develop transitional cell carcinoma of the bladder.
E. more likely to develop Vitamin B and K deficiencies.

82. A 35-year-old woman with a sacral spinal cord injury has urinary incontinence on clean intermittent catheterization every three hours. Urine culture is negative. Videourodynamics reveal a detrusor leak point pressure of 50 cm H_2O at 200 ml and no detrusor instability. The bladder neck is closed at rest and during Valsalva, but opens at the point of leakage. The next step is:

A. pubovaginal sling.
B. transurethral collagen injection.
C. ephedrine.
D. oxybutynin.
E. increase frequency of catheterization.

83. The drug with the most rapid onset of action in treating BCG sepsis is:

A. isoniazid.
B. rifampin.
C. ethambutol.
D. para-aminosalicylic acid.
E. cycloserine.

84. A seven-year-old boy with cloacal exstrophy undergoes gastric augmentation with a catheterizable stoma and closure of the bladder neck. He was initially continent but now has diurnal leakage despite regular catheterization and saline irrigation. The most likely cause of the incontinence is:

A. incompetent catheterizable stoma.
B. fistula at site of bladder neck closure.
C. incomplete reservoir emptying.
D. high amplitude rhythmic contractions.
E. decreased reservoir capacity.

85. Enterocele repair is indicated when the:

A. enterocele is iatrogenic.
B. enterocele is visible.
C. patient experiences low back pain.
D. vaginal mucosa is ulcerated.
E. enterocele is increasing in size.

86. During a radical cystoprostatectomy, intractable bleeding occurs after transection of the prostatomembranous urethra. Despite multiple suture ligatures, there is a persistent high volume venous blood loss from the retropubic space. The decision is made to ligate the dorsal vein. The appropriate tributaries can be found:

A. deep to Buck's fascia.
B. superficial to Buck's fascia.
C. superficial to Colles' fascia.
D. subcutaneously on the penile shaft.
E. at the level of the proximal crura.

87. The mechanism of action of quinolone antibiotics is:

A. inhibition of bacterial DNA gyrase.
B. binding to 50S ribosomal subunit.
C. inhibition of cell wall synthesis.
D. inhibition of dihydrofolate reductase.
E. activation of cell wall autolytic enzymes.

88. A 61-year-old man with Parkinson's disease has urinary frequency, urgency, urge incontinence, and weak stream. Urodynamics reveal involuntary detrusor contractions, a sustained voiding detrusor pressure of 88 cm H_2O and a maximum flow of 7 ml/sec. Postvoid residual is 100 ml. Treatment should be:

A. oxybutynin.
B. diazepam.
C. terazosin.
D. baclofen.
E. imipramine.

89. A 52-year-old man has muscle invasive transitional cell bladder carcinoma which on bimanual examination is fixed to the pelvic side wall. Serum creatinine is 2.8 mg/dl. A CT scan reveals extensive local tumor and bilateral hydronephrosis, but no nodal or visceral metastases. Treatment at this time should be:

A. chemotherapy with nonnephrotoxic agents.
B. percutaneous nephrostomies followed by chemotherapy.
C. radiation and chemotherapy.
D. retrograde ureteral stents followed by chemotherapy.
E. ileal conduit and chemotherapy.

90. A six-year-old uncircumcised boy has acute onset of gross hematuria, dysuria, and urinary frequency. There is no fever or flank pain. The urine is sterile and ultrasound shows normal kidneys with diffuse thickening of the bladder wall. The most appropriate management is:

A. observation.
B. circumcision.
C. acyclovir.
D. trimethoprim-sulfa.
E. bladder biopsy.

91. During multichannel pressure-flow urodynamics, true detrusor pressure is best determined by the:

A. difference between vesical and urethral pressure.
B. difference between vesical and abdominal pressure.
C. Valsalva leak point pressure.
D. sum of vesical and urethral pressure.
E. sum of vesical and abdominal pressure.

92. A 55-year-old woman with microhematuria has persistently positive voided urine cytologies. Evaluation consisting of two sets of cystoscopy and retrograde pyelograms, selective upper tract cytologies and random bladder/urethral strip biopsies are negative. The next step is:

A. repeat cytology in three months.
B. repeat random biopsies in three months.
C. intravesical BCG.
D. intravesical mitomycin C.
E. gynecological evaluation.

93. A 16-year-old boy has dysuria, a urethral discharge, and low grade fever. He has missed two previously scheduled appointments. The best treatment is:

A. penicillin 1 million units with probenecid 250 mg IM.
B. ciprofloxacin 500 mg BID for seven days.
C. ciprofloxacin 500 mg BID and doxycycline 100 mg BID for seven days.
D. cefixime 400 mg PO and azithromycin 1 g PO.
E. doxycycline 100 mg PO BID for seven days.

94. Which renal artery occlusive disease is most likely to be associated with stable renal function:

A. intimal fibroplasia.
B. medial hyperplasia.
C. medial fibroplasia.
D. perimedial fibroplasia.
E. atherosclerotic disease.

95. During a radical retropubic prostatectomy, the maneuver utilized to expose and help preserve the neurovascular bundle to the corpora cavernosa is:

A. ligation of the puboprostatic ligaments.
B. posterolateral ligation of the prostatic pedicles.
C. division of the lateral prostatic fascia.
D. division of the bladder neck before dissection lateral to the prostate.
E. mobilization of the membranous urethra and dorsal vein complex within the lateral prostatic fascia.

96. A 25-year-old man with a history of posterior urethral valves will most likely have:

A. arteriogenic erectile dysfunction.
B. normal sperm count.
C. normal semen quality.
D. neurogenic erectile dysfunction.
E. abnormal Sertoli cell function.

97. The incidence of renal cell carcinoma exceeds that of the general population for patients with:

A. medullary cystic disease.
B. acquired renal cystic disease.
C. adult polycystic kidney disease.
D. multiple endocrine neoplasia (Type 2).
E. tuberous sclerosis.

98. Which hormonal therapy for prostate cancer is most likely to cause visual disturbances:

A. flutamide (Eulexin).
B. bicalutamide (Casodex).
C. ketoconazole (Nizoral).
D. nilutamide (Nilandron).
E. leuprolide (Lupron).

99. A four-year-old boy undergoes a left dismembered pyeloplasty with placement of an extraperitoneal drain. By the third postoperative day, there is minimal output from the drain. The urethral catheter is removed. The next day, output from the drain is 400 cc. The next step is:

A. advance drain slowly.
B. replace urethral catheter.
C. percutaneous nephrostomy.
D. internal ureteral stent.
E. open repair of anastomotic leak.

100. A 62-year-old man undergoes angiography for evaluation of renal vascular disease. His serum creatinine is 1.8 mg/dl. The best treatment to prevent contrast related renal dysfunction is hydration and:

A. furosemide.
B. N-acetylcysteine.
C. dopamine.
D. mannitol.
E. prednisone.

101. A 67-year-old man with a clinical stage T2bNoMo Gleason 7 prostate cancer with a PSA of 7.8 ng/ml is treated with 70 Gy external beam radiotherapy. His PSA nadirs to 0.8 ng/ml three months after therapy. Three months later he is asymptomatic, has a normal DRE, and a PSA of 6.5 ng/ml. The most likely explanation for the elevated PSA level is:

A. prostatic infarct.
B. persistent prostate cancer.
C. PSA bounce effect.
D. radiation-induced prostatitis.
E. insufficient period of observation after therapy.

102. A full-term newborn boy had antenatal hydronephrosis identified during in-utero ultrasound. Ultrasound and VCUG four hours post-natally are normal. The next step is:

A. no further evaluation.
B. MAG-3 renal scan in three months.
C. ultrasonography in three months.
D. repeat ultrasound in 24 hours.
E. IVP in three months.

103. A 45-year-old woman with no prior urologic history is evaluated as a potential kidney donor for her crossmatch negative, zero antigen-matched sister. IVP reveals complete right ureteral duplication. Renal arteriography reveals one artery on the left and two on the right. This potential donor should:

A. be eliminated from further consideration for donation.
B. undergo cystoscopy and VCUG.
C. undergo a differential renal function scan.
D. undergo right donor nephrectomy.
E. undergo left donor nephrectomy.

104. A patient with high-risk stage B2 (T2b) prostatic carcinoma is to have a staging pelvic lymphadenectomy prior to definitive external beam radiation. The primary advantage of an extraperitoneal versus intraperitoneal approach is:

A. better exposure of the common iliac nodes.
B. better exposure of the obturator fossa.
C. lower incidence of lymphoceles.
D. lower incidence of post-radiation enteritis.
E. lower incidence of ureteral injury.

105. A two-year-old boy with stranguria develops gross hematuria. Urine culture is negative. Ultrasound shows normal kidneys and a polypoid mass at the base of the bladder. The next step is:

A. CT scan with contrast.
B. IVP.
C. VCUG.
D. MRI scan with gadolinium.
E. cystoscopy.

106. A 42-year-old woman has a slow rise in serum creatinine from 1.2 to 2.0 mg/dl one year after uneventful live donor transplantation. Ultrasound shows significant hydronephrosis and no perinephric fluid collection. The next step is:

A. CT scan.
B. MAG-3 renal scan.
C. VCUG.
D. retrograde ureterogram.
E. renal allograft biopsy.

107. A 79-year-old man with metastatic prostate cancer has a rapidly rising PSA on three consecutive occasions while on leuprolide and flutamide. He is asymptomatic. The most appropriate treatment is:

A. bilateral orchiectomy.
B. discontinue flutamide.
C. discontinue leuprolide and flutamide.
D. strontium-89 radiotherapy.
E. systemic chemotherapy.

108. A 38-week-gestation newborn with posterior urethral valves has a serum creatinine of 1.8 mg/dl. That level:

A. initially falls with a rapid rise in GFR.
B. is an ominous predictor of future renal function.
C. will decrease with completion of nephrogenesis.
D. is not reflective of the degree of renal function impairment.
E. will result in increased active sodium absorption from the descending limb of the loop of Henle.

109. A calyceal fistula in a renal allograft is most frequently associated with:

A. multiple renal arteries.
B. multiple renal veins.
C. ureteropyelostomy.
D. renal capsule injury.
E. hyperacute rejection.

110. A 69-year-old man with a large clinical Stage T3a (C) prostate cancer undergoes three months of androgen deprivation therapy prior to radical prostatectomy. The only beneficial effect of this therapy is:

A. decrease the size of the prostate gland.
B. downstage the tumor to an organ-confined lesion.
C. make the surgery technically easier.
D. decrease PSA recurrence rate.
E. improve the long-term, cause-specific survival.

111. A newborn infant is circumcised with a Gomco clamp after administration of a local anesthetic containing 1:1,000 epinephrine. Blanching of the penile skin and glans penis is observed. Physical examination demonstrates mild peripheral vasoconstriction of the hands and feet, blood pressure of 90/60 mm Hg, and a pulse of 160. The next step is:

A. I.V. papaverine.
B. I.V. propranolol.
C. subcutaneous phentolamine.
D. caudal sympathetic block.
E. oral nifedipine.

112. Calcium reabsorption in the distal renal tubule is mediated primarily by:

A. Vitamin D.
B. aldosterone.
C. hypocalcemia.
D. urinary sodium.
E. parathyroid hormone.

113. A 50-year-old man has a large right renal mass with tumor thrombus extending into the atrium. Under hypothermia and circulatory arrest, he undergoes nephrectomy with removal of the tumor thrombus. The most frequent significant complication is:

A. hepatic dysfunction.
B. pulmonary air embolus.
C. central nervous system deficit.
D. coagulopathy and hemorrhage.
E. tumor emboli.

114. A ten-year-old boy has a solitary right testicle on his physical examination for Little League football. Left inguinal exploration has verified blind-ending gonadal vessels. The preferred recommendation is:

A. MRI scan of the abdomen and pelvis.
B. laparoscopy.
C. abdominal exploration.
D. he play football wearing a protective cup.
E. he not play football.

115. Medullary sponge kidney disease is:

A. cystic dilation of the distal convoluted tubules.
B. a bilateral and hereditary renal abnormality.
C. characterized by hypocitraturia.
D. best diagnosed by IVP.
E. a precursor of end stage renal disease.

116. A 40-year-old man with von Hippel-Lindau syndrome has multiple solid tumors ranging from 2-4 cm throughout the entire left kidney. The right kidney has a 6 cm lower pole solid mass. There is no evidence of metastatic disease. The best management is:

A. bilateral tumor enucleations.
B. bilateral nephrectomy and dialysis.
C. left radical nephrectomy and right partial nephrectomy.
D. bilateral cryoablation.
E. surveillance.

117. A ten-year-old boy has a perineal "butterfly" hematoma following a straddle injury. This suggests rupture of the:

A. tunica albuginea.
B. corpus spongiosum.
C. corpus cavernosum.
D. posterior urethra.
E. Colles' fascia.

118. A 35-year-old man with recurrent calcium oxalate nephrolithiasis has a normal serum calcium and high urinary calcium. The best treatment is:

A. potassium citrate.
B. thiazide.
C. low calcium diet.
D. cellulose phosphate.
E. reduced dietary salt.

119. A 32-year-old woman has an incidentally discovered asymptomatic 3 cm angiomyolipoma in the central portion of the right kidney. One year later, the mass has enlarged to 5 cm. The left kidney is normal and the serum creatinine is 0.9 mg/dl. The next step is:

A. surveillance.
B. selective embolization.
C. partial nephrectomy.
D. simple nephrectomy.
E. radical nephrectomy.

120. The inferior mesenteric artery is ligated during a RPLND for testis cancer. Blood supply to the sigmoid colon is now derived from which artery:

A. right colic.
B. superior hemorrhoidal.
C. middle hemorrhoidal.
D. sigmoid.
E. middle sacral.

121. The principal source of operator radiation exposure during endourologic procedures is:

A. the primary radiation beam.
B. radiation leakage from the x-ray tube.
C. radiation scatter from the patient.
D. radiation scatter from endoscopic instruments.
E. radiation scatter from the operating room walls and floor.

122. Patients with metastatic renal cell cancer respond best to immunotherapy in the setting of:

A. bone metastases.
B. lung metastases.
C. good performance status.
D. liver metastases.
E. prior nephrectomy.

123. The periurethral prostatic glands in a young man:

A. comprise the bulk of the prostate.
B. comprise a small portion of the prostate.
C. empty into the ejaculatory duct.
D. are derived from the Wolffian duct.
E. are vestigial remnants.

124. Patients with cystine stones unresponsive to hydration and alkalization are best treated with:

A. N-acetylcysteine.
B. Tham-E.
C. alpha-mercaptopropionylglycine.
D. penicillamine.
E. acetohydroxamic acid.

125. A 57-year-old woman on hemodialysis for ten years has gross hematuria and mild right flank pain. Urine cytology and culture are negative. CT scan reveals small kidneys bilaterally with multiple cysts. Cystoscopy reveals bloody efflux from the right ureteral orifice, clear efflux from the left orifice, and normal bladder mucosa. The next step is:

A. antibiotic therapy.
B. angioinfarction of the right kidney.
C. right nephrectomy.
D. needle biopsy of kidney.
E. repeat CT scan in six months.

126. Dilated Cowper's ducts seen on urethrography are:

A. lateral to the membranous urethra.
B. posterior to the prostatic urethra.
C. anterior to the bulbous urethra.
D. posterior to the bulbous urethra.
E. posterior to the membranous urethra.

127. A 47-year-old man develops severe flank pain and gross hematuria following SWL for a 2 cm renal calculus. His vital signs remain stable. A CT scan of the abdomen reveals no hydronephrosis and a loculated subcapsular mass along the lateral aspect of the kidney. The next step is:

A. percutaneous drainage.
B. ureteral stent.
C. renal exploration.
D. epsilon aminocaproic acid (Amicar).
E. analgesics and observation.

128. In a patient with a clinical Stage I primary nonseminomatous germ cell tumor, which of the following histologic subtypes is predictive of relapse during surveillance:

A. teratoma.
B. teratocarcinoma.
C. embryonal cell carcinoma.
D. yolk sac carcinoma.
E. mixed germ cell tumor.

129. The ductuli efferentes of the testis enter the:

A. seminiferous tubules.
B. caput epididymis.
C. cauda epididymis.
D. vas deferens.
E. rete testis.

130. A 70-year-old man with diabetes, atrial fibrillation, and congestive heart failure has right renal colic. An IVP shows a 1 cm right renal pelvic stone that is partially obstructing, and 2 left calyceal stones measuring 0.5 cm each. Over the next 36 hours, he is comfortable but voids only 50 ml. The most likely explanation is:

A. contrast induced nephropathy.
B. renal infarction.
C. bilateral ureteral obstruction.
D. dehydration.
E. renal vein thrombosis.

131. A 20-year-old man has a 4 cm left testicular mass. Serum AFP is normal and beta-hCG is minimally elevated. He undergoes left radical orchiectomy. Histology demonstrates anaplastic seminoma with invasion of the rete testes. CT scan of the abdomen, pelvis, and chest is normal. Management should be:

A. surveillance.
B. bilateral retroperitoneal lymph node dissection.
C. systemic chemotherapy.
D. retroperitoneal external beam radiation.
E. left modified retroperitoneal lymph node dissection.

132. The most frequent histologic finding in the cryptorchid testis of a four-year-old boy is:

A. decreased number of germ cells.
B. increase in peritubular fibrosis.
C. late maturation of the Sertoli cell.
D. alteration of the tubular basement membrane.
E. decreased number of interstitial cells.

133. The most important factor to consider for percutaneous access to a continent urinary reservoir for removal of calculi is:

A. stone composition.
B. stone volume.
C. stone number.
D. adjacent structures.
E. type of diversion.

134. A 32-year-old man has clinical Stage I seminoma of the left testis. At the time of radical orchiectomy, he undergoes a right testis biopsy because the right testis is atrophic. Biopsy of the right testis demonstrates testicular intra-epithelial neoplasia (CIS). The next step is 20 Gy to the retroperitoneum and:

A. right orchiectomy and androgen replacement.
B. platinum-based chemotherapy.
C. 20 Gy to the right testis.
D. serial testicular ultrasounds.
E. repeat testis biopsy in six months.

135. Ectopic thoracic kidney is most commonly associated with:

A. anomalous vasculature.
B. contralateral UPJ obstruction.
C. vesicoureteral reflux.
D. no intrinsic pathology.
E. duplex drainage system.

136. A 45-year-old woman undergoes evaluation for recurrent calcium phosphate stones. Serum calciums range from 9.6-10.0 mg/dl (normal range 8.5-10.2 mg/dl); PTH 62 pg/dl (normal < 65 pg/dl); urine calcium 281 mg/day (normal < 200 mg/day); and urinary citrate 460 mg/day (normal > 320 mg/day). To further elucidate her metabolic diagnosis, she should be placed on a two week course of:

A. thiazides.
B. mercaptoproprinoglycine.
C. sodium cellulose phosphate.
D. orthophosphate.
E. potassium citrate.

137. In men with a history of surgically treated cryptorchidism, the factor which most influences the risk of developing testicular cancer is:

A. original location of testis.
B. gonocyte transformation failure.
C. testicular-epididymal nonunion.
D. carcinoma in situ.
E. age at orchiopexy.

138. A five-year-old boy with hepatosplenomegaly develops progressive azotemia and a renal concentrating defect. Ultrasound of the kidneys demonstrates slight enlargement with multiple small (1-2 cm) cortical cysts. An uncle died of renal disease. The most likely diagnosis is:

A. familial juvenile nephronophthisis.
B. autosomal recessive polycystic kidney disease.
C. autosomal dominant polycystic kidney disease.
D. tuberous sclerosis.
E. renal-retinal dysplasia.

139. The physiologic change during the third trimester of pregnancy that offers protection against kidney stone formation is:

A. increased ureteral peristalsis.
B. increased ureteral dilation.
C. increased urinary citrate.
D. decreased urinary calcium.
E. decreased urinary uric acid.

140. A 19-year-old man has a 1 cm mass in the right testis. Inguinal orchiectomy is performed, and final pathology is pure choriocarcinoma. CT scan shows a 2 cm para-aortic node, and chest x-ray shows four small nodules within the right lower lung. Beta-hCG remains elevated postoperatively. The most appropriate management is:

A. biopsy of the lung lesions.
B. retroperitoneal node dissection and pulmonary resection.
C. systemic chemotherapy and radiation.
D. systemic chemotherapy alone.
E. bone marrow transplant and systemic chemotherapy.

141. A three-year-old child with a duplicated collecting system has reflux to the upper renal segment upon voiding. The most appropriate statement is:

A. this type of anomaly is commonly bilateral.
B. the ureter to the upper segment is probably ectopic.
C. the ureter to the lower segment is probably ectopic.
D. the ureter to the lower segment is probably obstructed.
E. reflux to the upper system occurs frequently with complete ureteral duplication.

142. The medication used for patients with HIV infection most likely to result in renal calculus disease is:

A. didanosine.
B. ritonavir.
C. indinavir.
D. acyclovir.
E. cidofovir.

143. A 35-year-old man with Cushing's syndrome has an elevated plasma cortisol level that is not suppressed with high-dose dexamethasone. Urinary 17-ketosteroid and 17-hydroxysteroid levels are markedly elevated. The most likely diagnosis is:

A. pituitary adenoma.
B. ectopic ACTH production.
C. adrenal adenoma.
D. adrenal carcinoma.
E. anabolic steroid abuse.

144. A two-year-old girl has a palpable abdominal mass. CT scan demonstrates a 5 cm enhancing left renal mass. The right kidney is normal. The most appropriate treatment is:

A. percutaneous biopsy and chemotherapy.
B. left radical nephrectomy and postoperative chemotherapy.
C. left partial nephrectomy.
D. left radical nephrectomy and right renal biopsy.
E. preoperative chemotherapy and left radical nephrectomy.

145. A 23-year-old woman has acute flank pain and hematuria during her first trimester of pregnancy. The study with the greatest radiation exposure to the fetus is:

A. IVU.
B. CT abdomen.
C. CT pelvis.
D. DTPA renal scan.
E. MAG-3 renal scan.

146. A 40-year-old woman had bilateral total adrenalectomies for Cushing's disease after failed transsphenoidal hypophysectomy with complete resolution of symptoms and signs. Cortisol and fluorocortisone are given chronically. However, progressive hyperpigmentation and visual disturbances occur. This is most consistent with:

A. Addison's disease.
B. pituitary adenoma.
C. excessive glucocorticoid replacement.
D. residual functioning adrenal tissue.
E. ectopic melanocyte-stimulating hormone secretion.

147. A two-year-old boy has a cystic left upper pole testicular mass on ultrasound. Inguinal excision of the lesion is done leaving the lower half of the testis. Final pathology reveals teratoma with clear margins. AFP and beta-hCG are negative. Chest and abdominal CT scans are negative. The next step is:

A. observation.
B. radical orchiectomy.
C. radical orchiectomy and systemic chemotherapy.
D. radical orchiectomy and modified RPLND.
E. systemic chemotherapy.

148. The primary advantage of using frozen semen rather than fresh semen for in vitro fertilization with donor sperm is:

A. improved implantation rates.
B. improvement in embryonic vitality scores.
C. increased number of cryopreservable spare embryos.
D. decreased risk of HIV transmission.
E. decreased number of insemination cycles required to achieve a pregnancy.

149. The superficial inguinal lymph nodes are separated from the deep inguinal lymph nodes by:

A. sartorius muscle.
B. Cooper's ligament.
C. adductor longus muscle.
D. fascia lata.
E. pectineus muscle.

150. A 17-year-old boy undergoes evaluation for delayed puberty. He is above average height, has bilateral small testes, and gynecomastia. Serum FSH and LH are elevated and testosterone is low. This patient is at increased risk for:

A. prostate cancer.
B. seminoma.
C. Sertoli cell tumor.
D. breast cancer.
E. gonadoblastoma.

Question #1 ANSWER=B

ACTH and serum potassium may increase aldosterone secretion but the effect is much less pronounced than that achieved by renin. The primary mechanism for control of aldosterone production resides in a feedback system involving the kidney and its juxtaglomerular apparatus. In the presence of appropriate stimuli (i.e., decreased renal perfusion pressure) juxtaglomerular cells release renin which eventuates in the production of angiotensin II. Angiotensin II is a potent stimulator of aldosterone output from the zona glomerulosa of the adrenal cortex.

Blumenfeld JD, Vaughan ED Jr: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 6, pp 169-227.

Question #2 ANSWER=C

Cimetidine (Tagamet) is an androgen antagonist that may cause gynecomastia and decreased sperm density. Ketoconazole interferes with normal steroidogenesis whereas alcohol, marijuana, and methadone may cause suppression of testosterone synthesis. This may be useful as a part of the history of the infertile patient.

Goldstein M: Surgical management of male infertility and other scrotal disorders, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 44, pp 1532-1589.

Question #3 ANSWER=C

The anterior (distal) urethra and labia drain to the superficial and then deep inguinal nodes, while the posterior (proximal) urethra drains primarily to the external iliac, and then secondarily to the hypogastric and obturator lymph nodes.

Donat S, Cozzi PJ, Herr HW: Surgery of penile and urethral carcinoma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 84, p 2983.

Question #4 ANSWER=A

There are two isoenzymes of 5-alpha-reductase (Type I and Type II). Finasteride blocks only the Type II isoenzyme. The prostate and skin contain the Type II enzyme. Therefore, DHT levels are decreased in the prostate. There is an upregulation of serum and intraprostatic testosterone. The serum DHT is typically decreased by about 85% but not to castrate levels.

Vaughan ED Jr, Lepor H: Medical Management of BPH: Part I. AUA UPDATE SERIES 1996, vol 15, lesson 3, pp 18-23.

Question #5 ANSWER=D

Results of standard IVF without intracytoplasmic sperm injection are extremely poor in women over age 40. With donor eggs the pregnancy rate is over 30%. The overall rate of pregnancy after vasoepididymostomy is 30-50% but is dramatically lower with a wife of age 40.

Shulman A, Frenkel Y, Dor J, Levran D, Hendler I, Mashiach S: The outcome of in-vitro fertilization treatment by egg donation and intracytoplasmatic sperm injection for severe male factor infertility: a preliminary report. HUM REPROD 1998;Aug;13(8):2158-2160.

Berger RE, Deck AJ: Should vasectomy reversal be performed for men with older female partners? J UROL 2000;163:105-106.

Fuchs EF, Burt RA: Vasectomy reversal performed 15 years or more after vasectomy: Correlation of pregnancy outcome with partner age and with pregnancy results of in vitro fertilization with intracytoplasmic sperm injection. FERTIL STERIL 2002;Mar77(3):516-519.

Question #6 ANSWER=A

A mass with Hounsfield units between -30 and -140 is characteristic of an adrenal myelolipoma. These tumors are benign and are composed of lipid and myeloid tissue. No additional therapy or evaluation is required.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The Adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 101, pp 3507-3569.

Hilton S, Schwartz LH: Radiologic imaging of genitourinary neoplasms, in Raghavan D, Scher HI, Leibel SA, Lange PH (eds): PRINCIPLES AND PRACTICE OF GENITOURINARY ONCOLOGY. Philadelphia, Lippincott-Raven, 1997, pp 33-42.

Question #7 ANSWER=C

The center for integration and coordination of bladder and urethral activity is in the pons based on minimal electrophysiology studies and lesioning or PET scans in the human. The sacral cord and thoracic cord, left to themselves after spinal cord injury, exhibit disorganized, antagonistic, poorly sequenced activity. The nucleus ceruleus is near the center but not itself involved, and the basal ganglia and medulla seem to be involved in modulation of detrusor activity and perhaps in facilitation of detrusor contractility but not integration of bladder and urethral response.

Chancellor MB, Yoshimura N: Physiology and pharmacology of the bladder and urethra, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 23, pp 831-886.

Question #8 ANSWER=B

Microsurgical varicocelectomy has been performed in hopes of increasing the fertility status of men. There is an association between testicular atrophy and ipsilateral varicoceles. Varicocele repair in adolescents has been associated with catch-up testicular growth. In adults however, there is no change in testicular volume when studied with ultrasonography. Varicocelectomy will not change libido, ejaculate volume or pH, or semen fructose levels.

Papanikolaou F, Chow V, Jarvi K, et al: Effect of adult microsurgical varicocelectomy on testicular volume. UROL 2000;Jul56(1):136-139.

Question #9 ANSWER=C

Non-refluxing ureterointestinal anastomoses do not prevent upper tract colonization. In one study where needle aspirations of upper urinary tracts above functioning non-refluxing anastomoses were performed, virtually all upper tract systems were colonized. Studies which have compared non-refluxing colon conduits to refluxing ileal conduits have also shown similar rates of upper tract deterioration. While a properly functioning non-refluxing ureteral anastomosis does prevent pressure transmission to the upper urinary tract this benefit is in part offset by a higher incidence of ureterointestinal stricture. This has caused some to question the benefit of creating non-refluxing anastomoses in any form of urinary diversion whether conduit or continent.

Stein JP, Skinner DG: Orthotopic diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 108, pp 3835-3867.

Question #10 ANSWER=A

As the bladder fills, resting pressure within the intravesical ureter increases. This results in an increased intraluminal (ureteral) pressure and an increase in the frequency of ureteral contractions. The end result is continued excretion of urine into the filling bladder.

Chancellor MB, Yoshimura N: Physiology and pharmacology of the bladder and urethra, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 23, pp 831-886.

Question #11 ANSWER=D

The patient has von Hippel-Lindau disease, which is associated with bilateral renal cysts and tumors, cerebellar hemangiomas, and epididymal cysts.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 56, pp 1925-1994.

Question #12 ANSWER=D

Despite improvement in surgical techniques, stomal stenosis is still the most likely cause of the elongated dilated conduit with hydronephrosis and hyperchloremic acidosis. Therefore, the most appropriate treatment is revision of the stoma and shortening of the conduit. Administration of electrolytes is symptomatic treatment only. Because there is no obstruction at the site of the ureteroileal anastomosis, reimplantation is not indicated. Conversion to a non-refluxing colon conduit is not required in this setting where a simpler procedure - shortening of the ileal conduit and stomal stenosis - will suffice.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 106, p 3745.

Question #13 ANSWER=C

Increased renin with increased aldosterone will lead to an increase in circulatory blood volume. In hepatic venous congestion, aldosterone metabolism is diminished. Adrenal cortical adenoma causes mineralocorticoid excess and increased blood volume. Of all the conditions cited, only catecholamine excess, such as one might see in a patient with pheochromocytoma, is known to be associated with a decreased blood volume. This is the reason that preoperative volume expansion is important in patients with pheochromocytoma.

Blumenfeld JD, Vaughan ED Jr: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 6, pp 169-227.

Question #14 ANSWER=B

Nitrofurantoin has been reported to cause severe and irreversible peripheral neuropathy. This may be more likely in debilitated, diabetic, or Vitamin B deficient patients. For this reason, unless there are no other drugs that can be used,

nitrofurantoin should be avoided in patients who do not have static neurologic lesions. In addition, the risk of adverse reaction increases with age especially after age 50.

Schaeffer AJ: Infections of the urinary tract, in Walsh, PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 14, pp 515-602.

Question #15 ANSWER=D

The clinical scenario is of a small capacity pouch which leaks due to contractions of the pouch. This problem would be best served with an augmentation of small bowel. Reinforcement of the continence mechanism does not address the basis for incontinence. Incontinence associated with pouchitis is found in association with physical signs (tenderness over pouch, low grade fevers).

Benson MC, Olsson CA: Cutaneous continent urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 107, p 3789.

Question #16 ANSWER=B

Renal ischemia may cause cell damage by depleting energy stores (ATP) and decreasing activity of active transport via Na+/K+ and Ca++/Mg++ ATPases. As a result, intracellular influx of Na+, Ca++, Cl- and water occur. The influx of water causes cellular swelling. The use of solutions containing impermeable solutes, such as mannitol, help reduce cellular edema. Additionally, mannitol infusion results in improved renal hemodynamics and an osmotic diuresis.

Blumenfeld JD, Vaughan ED Jr: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 6, pp 169-227.

Question #17 ANSWER=A

The findings described are characteristic of clostridial wound infection. Clostridial infections should be considered in any patient with a wound infection, especially if there has been an injury to the colon. The organism is an anaerobe with a positive gram stain and a club shape. Clinically, the patient appears very toxic and a bronze discoloration of the involved skin is very characteristic. Crepitus may be absent. High doses of intravenous penicillin would be the antibiotic treatment of choice.

Chambers HF: Infectious diseases: Bacterial and chlamydial, in Tierney LM, McPhee SF, Papadakis MA (eds): CURRENT MEDICAL DIAGNOSIS AND TREATMENT. Norwalk, Lange Medical Books, 1994, p 1169.

Question #18 ANSWER=C

The presence of nodal metastases is not a contraindication for continent orthotopic diversion, if that is the patient's preference. Although the majority of patients with positive nodes go on to die of their disease, most have distant rather than local recurrence, and do not develop problems with the diversion from the cancer itself.

Hautmann RE, Simon J: Ileal neobladder and local recurrence of bladder cancer: Patterns of failure and impact on function in men. J UROL 1999;162:1963-1966.

Question #19 ANSWER=A

Approximately 80% of filtered bicarbonate is reclaimed by the proximal tubule. Hydrogen secretion by the proximal tubule is coupled to sodium reabsorption. The secreted hydrogen ion combines with filtered bicarbonate to form H_2CO_3. Carbonic anhydrase then catalyzes the dehydration of luminal H_2CO_3 to CO_2 and water. The CO_2 diffuses back into the cell where it may be hydrated to form additional H_2CO_3. The HCO_3 - generated within the cell - diffuses into peritubular blood. There is no active transport of bicarbonate in the nephron.

Blumenfeld JD, Vaughan ED Jr: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 6, pp 169-227.

Question #20 ANSWER=C

Acute interstitial nephritis due to penicillins may occur five days to five weeks after initiating the drug. Oliguria is unusual. The disease is not dose-dependent. Cross-sensitivity does exist, for example, administration of ampicillin to a patient who had developed interstitial nephritis with methicillin will precipitate a recurrence.

Schaeffer AJ: Infections of the urinary tract, in Walsh, PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 14, pp 515-602.

Question #21 ANSWER=A

Despite the high drain output, there is no evidence of urinary leakage and the high drainage is likely due to intraperitoneal fluid. In the absence of an clinical finding suggestive of urinary leakage such as low urine output, high serum creatinine or elevated creatinine levels in the fluid, observation with conservative management is prudent. Accordingly, there is no indication for intervention in this patient at this particular time. If clinical suspicion is high despite this, a contrasted study such as a CT scan with contrast I.V. contrast, an IVP or cystogram could be obtained.

Stein JP, Skinner DG: Orthotopic urinary diversion, Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELLS UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 108, pp 3835-3867.

Question #22 ANSWER=D

In the setting of an ileal conduit urinary diversion, ammonium absorption occurs with chloride in exchange for hydrogen and bicarbonate ions, and may be accompanied by renal potassium wasting. This results in a hypokalemic hyperchloremic metabolic acidosis. Hyponatremic hypochloremic hyperkalemic metabolic acidosis occurs with the use of jejunum due to sodium chloride loss with increased reabsorption of potassium and hydrogen ions. Use of stomach may lead to hypochloremic hypokalemic metabolic alkalosis due to hydrogen and chloride loss with renal oversecretion of potassium to compensate for proton loss.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 6, pp 169-227.

Question #23 ANSWER=A

The most common site of ureteral stricture disease in patients with genitourinary tuberculosis is the distal ureter, occurring in approximately 9% of cases. Obstruction may respond to antituberculous therapy alone. However, if improvement is not noted within three weeks, prednisone (20 mg tid) should be added. If this fails, reimplantation should be considered for short strictures (< 5 cm) and either a Boari flap or psoas hitch repair for longer strictures. Endourologic management of the stricture can also be considered for shorter strictures.

Gow JG: Genitourinary tuberculosis, in Seidmon EJ, Hanno PM (eds): CURRENT UROLOGIC THERAPY. Philadelphia, WB Saunders Co, 1994, pp 57-59.

Question #24 ANSWER=D

Kock pouch stones are a common late complication, and usually form on the surgical staples used to fix the nipple valves. SWL has no place in the treatment of pouch stones. Endoscopic management, either via the stoma or a percutaneous tract, is appropriate for smaller stones, especially those that are free-floating or on the afferent limb. A stone on the efferent limb will often be stuck on staples behind the nipple valve, and may also have formed on Marlex mesh which was often used to stabilize the nipple valves. It would be very difficult to break up endoscopically. Open stone removal is very quick and effective, and can also address the underlying cause of the stone.

Stein JP, Skinner DG: Orthotopic urinary diversion, Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELLS UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 108, pp 3835-3867.

Question #25 ANSWER=D

Duloxetine, a combined norepinephrine and 5-HT reuptake inhibitor has been shown, in an animal model of bladder irritation to increase the neural activity of both the urethral sphincter and the bladder. Duloxetine appears to have effects on both the bladder and external sphincter and has been proposed as a treatment for both stress and urge incontinence. Duloxetine increases the neural activity to the EUS and decreases bladder activity through effects on the central nervous system.

Chancellor MB, Yoshimura N: Physiology and pharmacology of the bladder and urethra, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 23, pp 831-886.

Question #26 ANSWER=B

Urethral meatal bacteria are the most frequent source of catheter-associated urinary tract infection. Unfortunately, topical urethral meatal antimicrobial agents do not prevent urinary tract infections and frequently cause overgrowth of resistant bacteria. Improper catheterization techniques, breaks in the system, and contamination of the drainage bag are less frequent but preventable causes of catheter-associated infection. Antimicrobials allow growth of resistant bacteria that are more difficult to treat but not more likely to cause infection.

Schaeffer AJ: Infections of the urinary tract, in Walsh, PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 14, pp 515-602.

Question #27 ANSWER=E

Use of bisphosphonate therapy in men with prostate cancer has demonstrated two outcomes: prevention of osteoporosis and reduction of skeletal-related events. Monthly intravenous zoledronic acid reduces analgesic use and the time to a skeletal event compared to placebo. However, these changes do not influence survival.

Smith MR, McGovern FJ, Zietman AL, et al: Pamidronate to prevent bone loss during androgen-deprivation therapy for prostate cancer. NEJM 2001,345:989-991.

Saad F, Gleason DM, Murray R, et al: A randomized placebo-controlled trial of zoledronic acid in patients with hormone-refractory metastatic prostate carcinoma. J NATL CANCER INST 2002,94:1458-1468.

Question #28 ANSWER=B

Respiratory disease associated with increased airway resistance, such as obstructive sleep apnea, is associated with increased renal sodium and water excretion mediated by plasma atrial natriuretic peptide (ANP) levels. The mechanism for elevated ANP release associated with obstructive sleep apnea is caused by increased right atrial transmural pressure resulting from hypoxia-induced pulmonary vasoconstriction. ANP release stimulates natriuresis by increased glomerular filtration rate and action on the inner medullary collecting duct. Other effects include renal blood vessel vasodilatory effects and suppression of renin secretion.

Weiss JP, Blaivas JG: Nocturnal polyuria versus overactive bladder in nocturia. UROL 2002;60(5A):28-32.

Question #29 ANSWER=E

Practice guidelines from the Infectious Disease Society of America suggests that three days of antibiotics is optimal therapy except for nitrofurantoin which requires seven days therapy to be equal to other antibiotics. Beta-lactams are less effective in community-acquired organisms with resistance as significant as 50% in some communities. Acute uncomplicated bacterial cystitis in healthy adult non-pregnant women is best approached with TMP-SMX since approximately 80% of E. coli are sensitive to this regimen. Oral fluoroquinolones may also be used for three days. Fosfomycin (Monurol) is a single dose therapy.

Warren JW, Abrutyn E, Hebel JR, et al: Guidelines for antimicrobial treatment of uncomplicated acute bacterial cystitis and acute pyelonephritis in women. CLIN INFECT DIS 1999;29:745-758.

Question #30 ANSWER=B

If possible, a percutaneous nephrostomy with placement of a stent across the fistula is the best management, since a percutaneous nephrostomy alone will not usually divert the urine completely. If this is not possible, exploration and operative repair may be necessary. Looposcopy might further disrupt the anastomosis and chances of passing a stent retrograde are slim.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 106, pp 3745-3788.

Question #31 ANSWER=D

Bladder augmentation represents the best solution to this complex problem; however, this can commit the patient to clean intermittent catheterization. This is not possible for this patient. In selected circumstances such as this, a continent catheterizable abdominal stoma is a useful option. The urethral sphincter is intact in this patient as evidenced by a very high abdominal leak pressure.

Rivas DA, Chancellor MB: Neurogenic vesical dysfunction. UROL CLIN N AM 1995;22:579-591.

Question #32 ANSWER=D

Urinary drug screening is now routinely performed in a number of settings. It is important to recognize that certain types of antibiotic therapy may result in false positive urinary opiate testing. Several types of quinolone agents including levofloxacin, ofloxacin, ciprofloxacin, norfloxacin, trovafloxacin, enoxacin, and nalidixic acid have this property. Rifampin therapy and poppy seed ingestion have also been reported to result in false positive urinary opiate testing.

Baden LR, Horowitz G, Jacoby H, Eliopoulos GM. Quinolones and false-positive urine screening for opiates by immunoassay technology. JAMA 2001;286:3115-3119.

Question #33 ANSWER=B

The most likely diagnosis is an AV fistula or a false aneurysm. Renal arteriography should be performed and an embolization procedure can be undertaken if one of the aforementioned lesions are identified.

Naitoh J, Smith RB: Complications of renal surgery, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT. Philadelphia, WB Saunders Co, 2001, pp 299-325.

Question #34 ANSWER=C

Burch colposuspension is a relatively durable procedure for correction of incontinence secondary to urethral hypermobility. The potential complications of this procedure include opening the bladder neck causing worsening of incontinence, placement of vaginal suture distal to the bladder neck causing urethral kinking with obstruction, and creation of an enterocele. In addition, superior placement of sutures can result in a kinking of ureters causing bilateral ureteral obstruction. One major risk can occur during placement of the lateral sutures into Cooper's ligament, injuring the femoral vein. This is managed by compression and then tying the suture.

Uyu G, Miller H: Critical operative modified Burch procedure, in Yu G, Miller H (eds): CRITICAL OPERATIVE MANEUVERS IN UROLOGIC SURGERY. St. Louis, Mosby-Year Book, 1996, pp 155-162.

Question #35 ANSWER=C

It must be decided whether this woman has recurrent E. coli infections or a persistent source of infection. One of the causes of surgically correctable bacterial persistence in the urinary tract is a unilateral infected atrophic kidney. To prove that this woman has bacterial persistence, however, upper tract bacterial localization cultures with bilateral ureteral catheterization need to be performed before nephrectomy is considered to treat her infections. If the kidney is not infected, these infections are the result of frequent E. coli reinfections in which case a right nephrectomy would not be helpful in treating her.

Schaeffer AJ: Infections and inflammation of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 14, pp 515-602.

Question #36 ANSWER=E

A prostatorectal fistula is relatively low in the pelvis and is best managed by the posterior-transanal repair (York-Mason) approach, in which the posterior anal sphincter is split to provide good exposure of the anterior rectal wall. The fistula site can then be excised with a multilayer closure. A transabdominal repair is difficult in this setting due the location deep within the pelvis, and this type of fistula is better repaired through the posterior, transanal approach. A urinary diversion may need to be considered, but only if attempts for primary repair have failed. This patient's PSA is <0.5 and he is likely to stay cancer free, so salvage prostatectomy should not be considered.

Rodriguez L, Payne CK: Management of urinary fistulas, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT. Philadelphia, WB Saunders Co, 2001, pp 186-203.

Question #37 ANSWER=B

This patient has urgency incontinence secondary to detrusor instability, as indicated by the random nature of the incontinence. A cystometrogram will fail to demonstrate involuntary bladder contractions in approximately 50% of patients with clinical urgency incontinence. Detrusor hyperreflexia implies the presence of involuntary bladder contractions in the face of neurological disease. This patient is neurologically normal therefore detrusor hyperreflexia is not the cause of her incontinence. Overflow incontinence is not the cause in this case as the post-void residual is low. The primary cause of the incontinence is not stress (increase in abdominal pressure) related, particularly not intrinsic sphincter deficiency, since urinary leakage did not occur during

Valsalva maneuvers. The characteristics of the incontinence are not consistent with a vesicovaginal fistula since the urinary leakage is not continuous.

Jackson S, Abrams P: The cystometrogram, in O'Donnell PD (ed): URINARY INCONTINENCE. St. Louis, Mosby-Year Book, 1997, chap 10, pp 69-76.

Question #38 ANSWER=A

Each of the three agents is concentrated in the urine so that efficacy is maintained despite dose-administration reductions. Only trimethoprim is concentrated in the vaginal fluid, and trimethoprim is not completely absorbed in the upper gastrointestinal tract. Only trimethoprim reduces the mass of urinary pathogens in the fecal flora. Nitrofurantoin is associated with the long-term side effect of pulmonary fibrosis.

Anderson RU: Treatment of complicated and uncomplicated urinary tract infections, in Mulholland SG (ed): ANTIBIOTIC THERAPY. Philadelphia, Lippincott-Raven, 1996, pp 23-37.

Question #39 ANSWER=C

Recurrent carcinoma should be suspected in any patient with delayed vesicovaginal fistula formation, even with prior radiation therapy, following management of a pelvic malignancy. CT scan or MRI scan may detect massive pelvic disease but biopsy of the fistula tract is mandatory to rule out carcinoma as the primary cause of the fistula.

Dmochowski R: Surgery for vesicovaginal fistula, urethrovaginal fistula, and urethral diverticulum, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 35, pp 1195-1217.

Question #40 ANSWER=B

With a stricture of the urethra or a bladder neck contracture using a catheter as small as 9 Fr may not allow urine to exit around its diameter. Using a rectal pressure as an estimate of intra-abdominal pressure or use of a suprapubic catheter represent alternative methods. More simply, a smaller diameter catheter such as 7 Fr or less can be used.

Dector RM, Harpster L: Pitfalls in leak point pressure determination. J UROL 1992;149:588-591.

Nitti VW: Postprostatectomy incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 28, pp 1063-1065.

Question #41 ANSWER=C

The best initial treatment of GU TB is triple drug treatment for two months followed by two drugs for four months. The best combination is INH, rifampin, and pyrazinamide. If the INH resistance is above 4% in the patient's community, addition of ethambutol or streptomycin to the three drugs is advised

Wise GJ, Talluri, GS, Marrella, VK: Fungal infections of the genitourinary system: Manifestations, diagnosis, and treatment. UROL CLIN N AM 1999;26:701-716.

Question #42 ANSWER=B

The bulbocavernosus reflex is a local spinal cord reflex arc reflecting S2-4. Absence of the bulbocavernosus reflex indicates sacral nerve damage such as a complete lower motor neuron lesion. Deep tendon reflexes reflect the integrity of upper motor neuron and lower motor neuron function. Lower motor neuron lesions usually result in hypoactive deep tendon reflexes. Sensory deficits at a specific dermatomal level are suggestive of a localized lesion either at the spinal cord or at the nerve root level.

Chancellor MB, Rivas DA: Voiding dysfunction due to spinal cord injury. AUA UPDATE SERIES 1995, vol 14, lesson 35.

Question #43 ANSWER=C

The most common severe side effect associated with the use of DDAVP is water intoxication and hyponatremia. This can lead to mental status changes and seizures. This condition is best detected by measurement of serum electrolytes, particularly sodium. Although a head CT and lumbar puncture are generally useful to evaluate symptoms of mental confusion and seizures, a history of DDAVP use and concomitant hyponatremia would preclude the need for these tests.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 26, pp 931-1026.

Question #44 ANSWER=B

Asymptomatic bacteria occurs in 4-7% of women of childbearing age irrespective of pregnancy. The prevalence of bacteriuria increases with parity, age, and lower socio-economic status. Bacteriuria occurs in the first prenatal visit in approximately 75% of women who develop infection during pregnancy. The majority of these infections (75%) occur in the first trimester. 20-40% of patients with bacteriuria early in pregnancy will develop pyelonephritis if untreated and this continued asymptomatic bacteriuria results

in premature birth and low birth weight. Quantitative urine cultures must be obtained in all patients at the initial prenatal visit.

Sobel JD, Kaye D: Urinary tract infections, in Mandel GL, Bennett JE, Dolin R (eds): PRINCIPAL AND PRACTICE OF INFECTIOUS DISEASES, ed 4. New York, Churchill Livingstone, 1995, pp 662-690.

Question #45 ANSWER=D

Hinman's review of non-neurogenic neurogenic bladder indicates that this entity is an acquired abnormality developing at the time the child learns voiding control. The inability to relax the urethral sphincter in conjunction with elevated intravesical pressures results in an obstructive pattern with all of its adverse affects on renal structure and function.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 64, pp 2231-2283.

Question #46 ANSWER=A

Antimuscarinic agents are contraindicated in patients with narrow-angle glaucoma. The medication may exacerbate the impeded drainage of aqueous humor from the anterior chamber of the eye increasing intraocular pressure, which heightens the risk of vision loss.

Nigro DA, Wein AJ: Pharmacologic therapy, in O'Donnell PD (ed): URINARY INCONTINENCE. St. Louis, Mosby-Year Book, 1997, pp 277-286.

Question #47 ANSWER=C

Within 48 hours, ketoconazole will lower the serum testosterone into the castrate zone. Flutamide, DES, and suramin do not result in a rapid hormonal blockade. GnRH agonists are contraindicated in this patient due to their initial "flare" effect; also with these agents, castrate levels are not reached for a two-week period.

Partin AW, Rodriguez R: The molecular biology, endocrinology, and physiology of the prostate and seminal vesicles, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMBPELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 45, pp 1237-1283.

Lowe FC, Somers WJ: The use of ketoconazole in the emergency management of disseminated intravascular coagulation due to metastatic prostatic cancer. J UROL 1987;137:1000.

Question #48 ANSWER=A

The rate of bladder filling (ml/min) is calculated by determining the child's predicted bladder capacity (average bladder capacity in ml = age in years + 2 X 30) and dividing the result by 10. In this case, (3+2) X 30 = 150/10 = 15 ml/min or less. It is important not to fill the bladder too fast as it may result in falsely low levels of detrusor compliance and may produce artifactual detrusor contractions. Filling at 10 percent per minute of the calculated bladder capacity (or less) avoids these problems.

Kraus SR, Boone, TB: Pediatric neurogenic bladder: Etiology and diagnostic evaluation, in Gonzales, ET, Bauer ST (eds): PEDIATRIC UROLOGIC PRACTICE. Baltimore, Lippincott, Williams and Wilkins, 1999, chap 22, p 370.

Question #49 ANSWER=A

This patient has significant erythrocytosis (similar to polycythemia vera) caused by testosterone stimulation. The best treatment is immediate phlebotomy with later reduction of testosterone dose. The elevated PSA warrants evaluation, but not urgently.

Drinka PJ, Jocker AL, Cuisinier M, et al: Polycythemia as a complication of testosterone replacement therapy in nursing home men with low testosterone levels. J AM GERIATR SOC 1995;43:899-901.

Question #50 ANSWER=B

The zona fasciculata is responsible for cortisol production, the zona glomerulosa for mineralocorticoid production, and the zona reticularis for androgen and estrogen production. The adrenal medulla secretes catecholamines.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The Adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 101, pp 3507-3569.

Question #51 ANSWER=E

The patient has tumor lysis syndrome and early acute oliguric renal failure secondary to uric acid nephropathy. The normal ultrasound without hydronephrosis rules out obstruction as the cause of the renal failure. Initial management is hydration, urinary alkalinization and reduction of uric acid with allopurinol. If that fails, hemodialysis may be necessary. The IVP should be avoided due to contrast exposure. Renal biopsy, to rule out interstitial tumor infiltration, is not indicated. The patient is not obstructed and cystoscopy with stent placement is not indicated.

Jones DP, Mahmoud H, Chesney RW: Tumor lysis syndrome: Pathogenesis and management. PED NEPHROL 1995;9:206-212.

Question #52 ANSWER=C

Prolactin secretion by the pituitary is under tonic inhibition by the hypothalamic prolactin inhibitory factor, dopamine. Hyperprolactinemia can cause declining libido and impotence. Most hyperprolactinemic men have had large pituitary tumors and hypopituitarism. In patients with small pituitary lesions, bromocriptine treatment alone will normalize serum prolactin levels and allow for spontaneous return of normal testosterone secretion sufficient for restoration of libido and potency in most patients. In many patients with pituitary adenomas, however, serum testosterone secretion did not return to normal with bromocriptine alone and serum testosterone levels remained subnormal. This group of patients will require, in addition to bromocriptine, parenteral testosterone to normalize libido fully and restore potency.

Spark RF: Hormones: Their changing role in impotence, in White R (ed): PROBLEMS IN UROLOGY: SEXUAL DYSFUNCTION. Philadelphia, JB Lippincott Co, 1987, pp 537-546.

Broderick GA, Lue TE: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 46, pp 1662-1663.

Question #53 ANSWER=D

One major vein drains each adrenal gland. The left adrenal vein enters the renal vein, whereas the right adrenal vein enters directly into the vena cava. The right adrenal vein is short, as well.

Zabbo A: The adrenal gland, in Stein BS, Caldamone AA, Smith JA (eds): CLINICAL UROLOGIC PRACTICE. New York, WW Norton, 1995, pp 396-397.

Question #54 ANSWER=B

The neonatal serum creatinine of 1.2 reflects maternal creatinine and is not a matter of concern. Maternal diabetes mellitus (insulin-dependent) poses an increased risk for sacral agenesis and bladder dysfunction in the infant. Maternal hypertension is associated with some risk of renal vein thrombosis. Some boys do not pass urine in the first 24 hours. At 20 hours, no studies are indicated in the absence of other problems. Multicystic kidney is congenital, but not hereditary.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 64, pp 2231-2283.

Question #55 ANSWER=A

Percutaneous or surgical revascularization of the internal pudendal arteries is not indicated owing to the patient's age and associated atherosclerotic vascular disease secondary to smoking. There is no indication for venous ligation. Owing to the vascular disease, penile injections may not be successful but should be implemented prior to insertion of a penile prosthesis.

Broderick GA, Lue TE: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 46, pp 1662-1663.

Question #56 ANSWER=C

Ureteral obstruction is a recognized complication of reconstructive vascular procedures. The incidence of mild or moderate permanent ureteral obstruction is 2 to 14 percent of patients and of temporary and asymptomatic hydronephrosis is 12 to 30 percent. Most patients present within one year following the procedure, but delays up to 14 years have been reported. Retroperitoneal fibrosis secondary to the surgical procedure is the most common cause of ureteral obstruction. It is likely secondary to bleeding or excessive dissection with resultant fibrosis. The other choices are all causes of obstruction, but not the most common.

Streem SB, Franke JJ, Smith JA Jr: Management of upper tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 13, pp 463-512.

Dalsing MC, Bihrle R, Lalka SG, et al: Vascular surgery-associated ureteral injury: Zebras do exist. ANN VASC SUR 1993;7:180.

Question #57 ANSWER=D

The patient has the Goldblatt one-kidney, one clip model of hypertension. In this model hypertension is characterized by volume expansion and a normal or suppressed plasma renin activity. Hypertension becomes unresponsive to angiotensin II antagonists or converting enzyme inhibition unless the patient is sodium-depleted.

Novick AD, Fergany A: Renovascular hypertension and ischemic nephropathy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 7, pp 229-271.

Question #58 ANSWER=C

The etiology of impotence is most likely uremia. Vascular insufficiency is unlikely. A significant number of male dialysis patients are impotent. Approximately 80% of young healthy men regain potency following transplantation.

Broderick GA, Lue TE: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 46, pp 1662-1663.

Question #59 ANSWER=D

This patient has failed endopyelotomy, both on ultrasound and by virtue of renal scan results. This is not surprising as a patient with severe hydronephrosis has as high as a 50% risk of failure compared to a 4% risk in patients with moderate hydronephrosis. Optimal therapy for these patients who have failed endopyelotomy with severe hydronephrosis is open or laparoscopic pyeloplasty.

Gupta M, Tuncay OL, Smith AD: Open surgical exploration after failed endopyelotomy: A 12-Year perspective. J UROL 1997;157:1613.

Question #60 ANSWER=D

One of the most frequent causes of intermittent gross hematuria in children is Berger's disease or IgA nephropathy. While the disease may be more benign in children, occasional cases will progress to renal failure, making its recognition important. These patients should be followed with serum creatinine and 24-hour urine for creatinine and protein. If these indicate mild and stable disease, biopsy is not required.

Roy S III, Noe HN: Renal disease in childhood, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 53, pp 1833-1845.

Question #61 ANSWER=A

A recent study has shown that there is a dramatic increase in infection following revision of penile prostheses.

Jarow J: Risk factors for penile prosthesis infection. J UROL 1996;156:402-404.

Question #62 ANSWER=D

Primary urethral anastomosis is the most likely single operation to result in permanent correction. Urethral dilation and visual internal urethrotomy have a high recurrence rate. Patch flap urethroplasty is a reasonable alternative, especially if the stricture is longer. A urethral stent has little place in a young man with a first stricture.

Jordan GH, Schlossberg SM: Surgery of the penis and urethra, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 110, pp 3886-3954.

Question #63 ANSWER=A

The child has significant hypernatremia and hypokalemia. Most cases of hypernatremia are due to loss of water or failure to adequately replace water loss. In this case, water loss is due to diarrhea and vomiting. These extrarenal water losses are associated with a decrease in extracellular fluid volume indicating deficits in total body sodium as well as water. The proportionally greater deficiency of water than of sodium leads to the increase in the serum sodium concentration. Initial fluid replacement in this child should replace the water loss and salt losses with a hypotonic salt solution (0.25NS with 40 m
mEq/l KCl at 100 cc/hr) at a rate 1.5-2.0x maintenance.

Diagnostic and therapeutic information: Fluids and electrolytes, in Barone MA (ed): THE HARRIET LANE HANDBOOK, ed 14. St. Louis, Mosby-Year Book, 1996, chap 11, pp 215-234.

Question #64 ANSWER=C

In a prospective, two year, single-blinded, randomized trial of 34 postmenopausal women, combined estrogen and testosterone therapy led to a greater improvement in multiple measures of sexuality than just estrogen therapy alone.

Shabsigh R: Female sexual function and dysfunction, in Walsh PC, Retik AB, Vaughan ED, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 48, pp 1726-1728.

Question #65 ANSWER=C

A 4 cm gap, if covered by simple approximation, will result in recession of the penis into the scrotum. A scrotal rotational flap will cover the penile skin with hairy, rugous skin and will be cosmetically displeasing. Therefore, a split thickness skin graft should be used. The distal skin should be removed. If it is not removed, the interposed split thickness graft will cause

obstruction of the normal lymphatic drainage of this distal skin and lymphedema will result. There is no reason to remove the proximal skin.

McAninch JW, Santucci, RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 105, pp 3707-3744.

Question #66 ANSWER=A

Severe hyperkalemic cardiotoxicity must be treated immediately, not by lowering serum potassium concentration alone but preventing cardiac excitability and antagonizing the cardiotoxic effects of hyperkalemia. Thus, intravenous calcium gluconate is the treatment of choice. This must be followed by measures to immediately lower serum potassium since the duration of calcium effects are brief. Bicarbonate and glucose should be given next, but they are short-acting and exchange resins/dialysis should be planned for more long-term treatment.

Kale, AS, Brewer, ED: Management of renal failure in children, in Gonzales, ET, Bauer, SB (eds): PEDIATRIC UROLOGY PRACTICE. Philadelphia, Lippincott, Williams and Wilkins, 1999, chap 5, pp 79-90.

Question #67 ANSWER=B

Greater than 90% of penile prosthetic infections are caused by staphylococcus epidermidis.

Mulcahy JJ: Overview of penile implants, in Mulcahy JJ (ed): DIAGNOSIS AND MANAGEMENT OF MALE SEXUAL DYSFUNCTION. New York City, Igaku-Shoin, 1997, chap 13, p 228.

Lewis RW, Jordan GH: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 47, pp 1681-1683.

Question #68 ANSWER=A

The most common cause of retroperitoneal hemorrhage is rupture of an abdominal aortic aneurysm. Renal and adrenal diseases account for the majority of cases other than those due to aortic aneurysms. Renal adenocarcinomas account for the majority of these latter cases. Although both malignant and benign tumors may rupture, renal adenocarcinomas account for the majority of such cases, due to the higher incidence of such tumors compared to benign lesions (angiomyolipomas).

Zhang JQ, Fielding JR, Zou, KH: Etiology of spontaneous renal hemorrhage: A meta-analysis. J UROL 2002;167:1593-1596.

Question #69 ANSWER=A

Urine volume is the difference between GFR and amount of water resorbed. If a normal adult has a GFR of 180 liters/day then 179 liters must be reabsorbed to have a urine volume of one liter. Anuria is described as urine volume that is virtually nil, i.e., less than 50 ml/day. Oliguria is substantially reduced urine volume (less than 30 ml/hour). Urine sodium concentration is usually below 25 mEq/l in volume depletion and above 40 mEq/l with normovolemia or acute tubular necrosis. A urinary sodium of only 8 mEq/l is most suggestive of prerenal azotemia.

Rose BD, Rennke HG: RENAL PATHOPHYSIOLOGY - THE ESSENTIALS. Baltimore, Williams & Wilkins, 1994, pp 206-208.

Question #70 ANSWER=E

Men with multiple sclerosis and detrusor-striated sphincter dyssynergia are at significant risk to develop upper urinary tract abnormalities. Besides detrusor-striated sphincter dyssynergia in men, sustained intravesical pressures greater than 40 cm of water rather than just elevated voiding pressures is also a significant risk factor. Although all of the other answers may be seen in men with voiding symptoms and multiple sclerosis, their presence is not as significant as the initial findings of detrusor-striated sphincter dyssynergia.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 26, pp 931-1026.

Question #71 ANSWER=E

Bowel injury associated with laparoscopic surgery is a rare complication. The presentation is unusual and consists of severe pain at the trocar site nearest the injury, abdominal distension and leukopenia. Peritoneal signs and ileus are distinctly absent and the painful trocar site appears remarkably normal. Based on these findings, a CT scan should be obtained at the first suspicion, and immediate repair is mandatory. Failure to recognize a bowel injury may result in rapid cardiovascular collapse and death.

Bishoff JT, Allaf ME, Kirkels W, et al: Laparoscopic bowel injury: Incidence and clinical presentation. J UROL 1999;161:887-890.

Question #72 ANSWER=A

This patient has symptoms characteristic of hypovolemic hypernatremia. It is essential to first restore plasma volume with lactated Ringers. The hypernatremia should then be

lowered slowly, no more than 10 mEq per day to prevent intracranial swelling and fatal complications.

Hensle TW, Kearney MC: Fluids, electrolytes and nutrition, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 5, pp 51-57.

Question #73 ANSWER=A

Significant hemorrhage is the major complication to be anticipated in the performance of an external sphincterotomy. Autonomic dysreflexia would not be anticipated to be a major problem because of the level of the lesion. Autonomic dysreflexia is seen with high spinal cord lesions which occur above the level of the sympathetic outflow tract. With appropriate antibiotic coverage, acute urinary tract sepsis is usually not a major problem. Likewise, priapism or impotence are rarely if ever encountered during the performance of this operative procedure.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 26, pp 931-1026.

Question #74 ANSWER=C

Delayed presentation after penile fracture should not change ones management that requires prompt surgical exploration with evacuation of the hematoma and repair of the tunica albuginea. A retrograde urethrogram should be performed prior to surgical exploration. There does not appear to be altered sexual function or penile curvature despite the delayed presentation and repair.

Cummings JM, Parra RO, Boullier JA: Delayed repair of penile fracture. J TRAUMA 1998;45(1):153-154.

Question #75 ANSWER=E

The vital signs in this infant are normal for age as is the hemoglobin. No specific intervention is necessary as the urine output is an acceptable 0.5 cc/hr.

Drutz JE: The pediatric physical examination, in Gonzales ET, Bauer SB (eds): PEDIATRIC UROLOGY PRACTICE. Philadelphia, Lippincott Williams and Wilkins, 1999, chap 1, pp 1-33.

Question #76 ANSWER=C

This patient has a bladder neural injury which may recover, so intermittent catheterization is the treatment of choice. Bethanechol will not help. A TURP is premature, may cause permanent incontinence, and in any case, will not help generate a detrusor contraction. Cystoscopy and urodynamics may show a large prostate and signs of obstruction, but will not impact management at this time.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8, Philadelphia, WB Saunders Co, 2002, chap 26, pp 931-1026.

Question #77 ANSWER=A

Toxic metabolic effects secondary to drug reabsorption of methotrexate from intestinal mucosa used in urinary tract reconstruction can occur. Vigorous hydration, alkalinization of the urine, and catheter drainage can prevent this complication. The other agents given do not display a significantly increased toxicity because of intestinal reabsorption. Methotrexate is the smallest molecule of those listed, and therefore most likely to be absorbed.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 106, p 3745.

Question #78 ANSWER=D

Approximately 75% of children will have normal bladder function after a period of defunctionalization. The need for bladder augmentation is more related to the effects of the primary pathological condition on the detrusor than the diversion itself. Augmentation cystoplasty is rarely needed after undiversion in patients with posterior urethral valves.

Jayanthi VR, McLorie GA, Khoury AE, Churchill BM: The effects of temporary cutaneous diversion on ultimate bladder function. J UROL 1995;154:889-892.

Question #79 ANSWER=D

Imipramine has a strong direct inhibitory effect on bladder smooth muscle (neither anticholinergic nor adrenergic) which is probably the result of local anesthetic-like action at nerve terminals in adjacent effector membranes, or inhibition of calcium in the excitation-contraction coupling process. Imipramine also has an alpha-agonist effect, and also inhibits serotonin reuptake.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 26, pp 931-1026.

Question #80 ANSWER=C

Deletion of 17p is common in invasive tumors but rarely is observed in superficial cancer, except for carcinoma in situ. The proposed site of the p53 tumor suppressor gene is 17p. The p53 tumor suppressor gene is more often associated with invasive bladder cancer than with superficial cancer. Superficial cancers with increased p53 immunostaining are at high risk for tumor progression. In a multivariate analysis, increased p53 immunostaining was an independent prognosticator for patient survival. Increased p53 immunostaining occurs as an early event in low Stage pTa and pT1 tumors that ultimately progress to muscle invasive disease.

Messing ED: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 76, pp 2732-2784.

Question #81 ANSWER=C

It has been demonstrated in several studies that linear growth is less, on average, in children who undergo intestinal bladder augmentation than in those who do not. The reasons for this are not clear, but may be related to subclinical metabolic acidosis. Bladder augmentation will not increase nocturnal enuresis, which is common in children with exstrophy. Those with bladder augmentation are more likely to have bladder stones. There may be an increased risk of neoplasia in augmented bladders, but this is more commonly adenocarcinoma. Long-term studies have failed to consistently demonstrate vitamin deficiencies in children undergoing gastrointestinal bladder reconstruction.

Gearhart JP: Exstrophy epispadias and other bladder anomalies, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 61, pp 2136-2196.

Gros DA, Dodson JL, Lopatin U, Gearhart JP, Silver RI, Docimo SG: Decreased linear growth associated with intestinal bladder augmentation in children with bladder exstrophy. J UROL 2000;164:917-920.

Question #82 ANSWER=D

This patient clearly has urinary incontinence secondary to poor bladder compliance as indicated by a detrusor leak point pressure of 50 cm H_2O and her history of a sacral spinal cord injury. Injury to the sacral spinal cord often results in poor bladder compliance which can cause urinary incontinence and damage to the upper urinary

tract. The poor compliance is best initially treated with anticholinergics such as oxybutynin but may ultimately require augmentation cystoplasty. Procedures or medications designed to increase outlet resistance risk a worsening of the compliance and injury to the upper urinary tract.

Breslin DS, Staskin DR: Bladder noncompliance, in O'Donnell PD (ed): URINARY INCONTINENCE. St. Louis, Mosby-Year Book, 1997, chap 48, pp 348-355.

Question #83 ANSWER=E

Cycloserine inhibits BCG growth within 24 hours. The other drugs listed require 2-7 days to inhibit BCG growth. Because of its relatively rapid action, cycloserine can be life saving in patients with BCG sepsis.

Malkowitz SB: Management of superficial bladder cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 77, p 2785.

Question #84 ANSWER=D

Although rhythmic contractions have been noted with all bowel segments, they can be present in up to 62% of patients following gastrocystoplasty. Use of a slightly larger segment of stomach that is longer along the greater curvature results in improved urodynamics. Addition of a segment of ileum to form a composite reservoir will resolve the compliance issue.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 71, pp 2508-2563.

Question #85 ANSWER=D

Conservative therapy for an enterocele may include avoiding straining, minimizing constipation, pelvic floor muscle exercises, hormonal therapy or a vaginal pessary. Surgery is indicated if the patient's lifestyle is affected and the condition cannot be managed conservatively. When vaginal mucosal ulceration develops topical estrogen may improve the health of the tissue but the effect is rarely complete or lasting.

Cespedes RD, Dmochowski RR: The diagnosis and treatment of vaginal prolapse conditions. Part II Enterocele, uterine and vault prolapse. AUA UPDATE SERIES 2002, vol 21, lesson 24.

Question #86 ANSWER=A

The tributaries from the deep dorsal vein are beneath Buck's fascia. Ligation of the dorsal vein in this situation is rarely required.

Walsh PC: Anatomic radical retropubic prostatectomy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ: CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 90, p 3107.

Question #87 ANSWER=A

Antibiotics are classified according to their chemical structure and proposed mechanism of action. Quinolones inhibit bacterial DNA gyrase promoting double stranded DNA breakage and subsequently blocking DNA synthesis. The macrolide antibiotics such as erythromycin bind to the 50S ribosomal subunit of bacteria and inhibit RNA-dependent protein synthesis. The penicillins and cephalosporins act by inhibiting cell wall synthesis. These drugs also activate cell wall autolytic enzymes. Trimethoprim blocks the conversion of dihydrofolate to tetrahydrofolate by inhibiting the enzyme dihydrofolate reductase.

Schaeffer, AJ: Infections of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 14, pp 513-602.

Question #88 ANSWER=C

The urodynamic data clearly documents involuntary detrusor contractions and bladder outlet obstruction, most likely due to BPH. The most reasonable pharmacologic approach is to use an alpha sympathetic blocking agent such as terazosin. Detrusor-external sphincter dyssynergia is not seen in Parkinson's obstruction. Thus diazepam and baclofen, which are intended to induce skeletal muscle relaxation, are not indicated. Both oxybutinin and imipramine may abolish the involuntary detrusor contractions, but the patient will probably not void because of the prostatic obstruction.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8, Philadelphia, WB Saunders Co, 2002, chap 26, pp 931-1026.

Question #89 ANSWER=B

Radical cystectomy and urinary diversion in a patient with this degree of renal failure would be associated with excessive morbidity and would not likely render the patient disease-free. A more reasonable approach would be to first place nephrostomy tubes

to allow the patient to recover renal function. While some might perform radical cystectomy after renal function stabilizes, it is not likely to render the patient disease-free. Considering the moderate efficacy of platinum based chemotherapy, it is reasonable to treat the patient first with chemotherapy and to attempt surgical resection if he has a favorable response. While the impact of this approach on survival has not been established, significant response rates have been reported. If the patient does not respond, his survival is extremely limited and he should be palliated only. Urinary diversion at this point would affectively manage the renal failure but it offers no long-term hope of survival, unless chemotherapy is effective. Retrograde stent placement is very unlikely to be successful considering the location of the tumor.

Splinter TAW, Scher HI: Adjuvant and neoadjuvant chemotherapy for invasive (T3-T4) bladder cancer, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY. Baltimore, Williams & Wilkins, 1996, p 468.

Question #90 ANSWER=A

The clinical history and the findings during investigation of the urinary tract are most consistent with acute viral cystitis. The most common virus is adenovirus. This infection is more common in boys than in girls, may cause transient vesicoureteral reflux, and is usually self-limiting. Observation is the most appropriate management.

Shortliffe LMD: Urinary tract infections in infants and children, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 54, pp 1846-1884.

Question #91 ANSWER=B

Detrusor pressure (Pdet) is not a directly measured parameter. Rather, it is calculated by subtracting abdominal pressure (Pabd), determined by an intra-rectal probe, from intravesical pressure (Pves) which is measured by a catheter located in the bladder. None of the other calculations are helpful in assessing detrusor pressure. Valsalva leak point pressure assesses the urethra's ability to withstand increases in intraabdominal pressure and is helpful in evaluating patients with stress urinary incontinence.

Jackson S, Abrams P: The cystometrogram, in O'Donnell PD (ed): URINARY INCONTINENCE. St. Louis, Mosby-Year Book, 1997, chap 10, pp 70-75.

Question #92 ANSWER=E

Over 90% of patients with unconfirmed positive cytologies will develop recognizable cancer in follow up. While the vast majority develop in the GU tract, 14% develop in the cervix, uterus and gastrointestinal tract. Therefore, following a thorough negative GU evaluation, a gynecological evaluation is warranted.

Schwalb DM, Herr HW, Fair WR: The management of positive urinary cytology in the absence of visible disease. AUA UPDATE SERIES 1994, vol 13, lesson 36.

Question #93 ANSWER=D

This boy has a presumptive diagnosis of gonococcal urethritis and should be treated at the time of initial contact to ensure adequate treatment. His compliance with follow-up should be **Question**ed and one-time treatment is probably optimal. This would be best accomplished with oral cefixime and azithromycin for the presumptive associated chlamydia trachomatis that is present in 50% of patients with gonococcal urethritis. Treatment of sexual partner(s) is critical to treatment success. An alternative to cefixime is 125 mg of I.M. ceftriaxone.

Krieger JN: Urethritis: Etiology, diagnosis, treatment, and complications, in Gillenwater JY, Grayhack JT, Howards SS, Mitchell ME (eds): ADULT AND PEDIATRIC UROLOGY, ed 4. Philadelphia, Lippincott Williams and Wilkins, 2002, vol 2, chap 39, pp 1849-1882.

Question #94 ANSWER=C

In patients with medial fibroplasia, increases in serum creatinine or reduction in kidney size are not the rule. Despite the progressive nature of this disease, the risk of losing renal function over time because of progressive arterial occlusion is relatively small. Therefore, renal revascularization for preservation of renal function need not be routinely undertaken even for patients with bilateral disease. Operative intervention or transluminal angioplasty can be limited to those patients with hypertension refractory to control with drug therapy. Progressive ischemic nephropathy leading to loss of function is the end stage of the pathophysiology of perimedial or intimal fibroplasia, medial hyperplasia, or atherosclerotic disease.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 7, pp 229-271.

Question #95 ANSWER=C

Incision of the lateral prostatic fascia allows direct vision of the neurovascular bundles from the membranous urethra to the bladder neck. The puboprostatic ligaments contain no vessels and do not require ligation to give access to the dorsal veins and membranous urethra. Mobilization of the dorsal veins and membranous urethra together within the lateral prostatic fascia will usually injure the bundle. Division of the bladder neck before more distal dissection (antegrade approach) is more likely to lead to damage to the bundles than the retrograde approach (Walsh) in which the membranous urethra is severed prior to working cranially. Ligation of the prostatic pedicles

posterolaterally, while occasionally necessary to encompass direct extension of tumor, will usually interrupt the neurovascular bundles.

Walsh PC: Anatomic radical retropubic prostatectomy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 90, p 3107.

Question #96 ANSWER=B

Overall erectile function in valve patients is good although fertility has been reported to be compromised because of dribbling or absent ejaculate or retrograde ejaculation. Overall semen quality is not good (high viscosity and pH), but sperm counts have been reported as normal.

Gonzales ET: Posterior urethral valves and other urethral anomalies, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 63, pp 2207-2230.

Question #97 ANSWER=B

Patients with ESRD-associated acquired renal cystic disease develop renal cell carcinoma with an incidence 40 times that of the general population. The incidence is higher in males and correlates with the length of time on dialysis. None of the other conditions are associated with renal cell carcinoma.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 56, pp 1925-1994.

Question #98 ANSWER=D

Studies of Nilutamide have demonstrated that its unique side-effects, in comparison to other anti-androgens have included visual disturbances (light to dark adaptation) and rare cases of pulmonary fibrosis.

Janknegt RA, Abbou CC, Bartoletti R, et al: Orchiectomy and nilutamide or placebo as treatment of metastatic prostatic cancer in a multinational double-blind randomized trial. J UROL 1993;149:77-83.

PHYSICIAN'S DESK REFERENCE TO PHARMACEUTICAL SPECIALTIES AND BIOLOGICALS, ed 50. Oradell, New Jersey, Medical Economics Data, 1996.

Question #99 ANSWER=B

Postoperative placement of a urethral catheter after an open pyeloplasty appear prudent as the catheter lessens the risk for an anastomotic leak due to back pressure from either ipsilateral vesicoureteral reflux or a distended bladder. In the event of urinary leakage from the flank drain occurring after removal of the urethral catheter, catheter replacement should be the most appropriate next step in management.

Maizels M: Commentary on pyeloplasty, in Hinman F Jr (ed): ATLAS OF PEDIATRIC UROLOGIC SURGERY. Philadelphia, WB Saunders Co, 1994, pp 133-134.

Question #100 ANSWER=B

Patients with established renal insufficiency (serum creatinine > 1.5 mg/dl) are considered to be at increased risk for contrast related renal injury. The antioxidant N-acetylcysteine in combination with hydration has been shown to significantly reduce contrast-induced nephrotoxicity in patients with chronic renal insufficiency compared with hydration alone. None of the other alternatives has been shown to be more renoprotective than hydration alone.

Tepel M, van der Giet M, Schwarzfeld C, et al: Prevention of radiographic contrast-agent-induced reductions in renal functions by acetylcysteine. NEJM 2000;343:210-212.

Question #101 ANSWER=B

A marked increase in serum PSA after a nadir within six months of external beam radiotherapy is a sign of persistent local or occult metastatic prostate cancer and has a poor prognosis. Radiation induced cellular injury or prostatitis may cause a minor rise in PSA which usually returns to normal within a few weeks (PSA bounce) and is more common after interstitial brachytherapy than external beam therapy.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 1998, chap 92, p 3147.

Question #102 ANSWER=C

Timing of the neonatal ultrasound is important to interpretation of its clinical relevance. The renal pelvis may be moderately dilated on antenatal ultrasonography, yet appear normal in the first few days of life because oliguria during the first 24 to 48 hours of life might cause a distended renal pelvis to decompress transiently. If the renal ultrasound is normal, a VCUG should be done to determine whether reflux is present, and a renal ultrasound repeated in six weeks.

Peters CA: Perinatal urology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 51, pp 1781-1811.

Question #103 ANSWER=E

With current immunosuppressive regimens, even a zero antigen match kidney from a living related donor can be expected to function with a high success rate at one year. Currently, the only prerequisite for donation in this setting is a negative cross match. The uncomplicated duplication anomaly does not preclude donation. If there are single arteries bilaterally, the nonduplicated side should be taken for donation as the transplant itself will be less complicated and the donor will still be left with a functionally normal kidney. With two ureters on the duplicated (right) side, the choice for donation of the left kidney is even clearer.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 10, p 372.

Question #104 ANSWER=D

The advantage of an intraperitoneal approach is exposure of the nodes along the common iliac and aortic area but this approach is associated with a significant increase of post-radiation enteritis due to bowel adhesions. Also, with the intraperitoneal approach, a prolonged hospital stay with increased ileus and wound infections is not uncommon. Therefore, most urologists would recommend the extraperitoneal approach.

Eastham JA, Scardino PT: Radical prostatectomy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 89, p 3080.

Question #105 ANSWER=C

Congenital urethral polyps are an unusual cause of bladder outlet obstruction. They are benign fibroepithelial growths that usually originate from the verumontanum and extend towards the bladder. These polyps may also originate at the bladder neck. A VCUG will be diagnostic showing a filling defect at the bladder base. During voiding, the polyp will prolapse, causing outlet obstruction. Transurethral resection with electrocautery is usually definitive.

Gonzales ET: Posterior urethral valves and other urethral anomalies, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 63, pp 2207-2230.

Question #106 ANSWER=C

The absence of a perinephric fluid collection and late presentation of hydronephrosis accompanied by slowly declining renal function suggests the possibility of significant reflux into the transplant ureter. The most appropriate initial diagnostic study is a voiding cystourethrogram.

Naraghi RM, Jordan ML: Surgical complications of renal transplantation, in Shapiro R, Simmons RL, Starzl TE (eds): RENAL TRANSPLANTATION. Stamford, Appleton and Lange, 1997, pp 269-297.

Question #107 ANSWER=B

Approximately 30% of patients experience a 50% decrease in serum PSA when flutamide is discontinued after failing combined androgen deprivation therapy with leuprolide or orchiectomy with flutamide. In some of these cases objective responses also occur. Only patients receiving combined therapy appear to respond. The androgen withdrawal syndrome has also been reported with bicalutamide. Strontium-89 and/or chemotherapy are only indicated for the palliation of symptomatic bony metastases.

Eisenberger MA and Carducci MA: Chemotherapy for hormone resistant prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 95, p 3209.

Question #108 ANSWER=D

The creatinine in a newborn is reflective of maternal renal function and is not representative of the degree of renal impairment or lack thereof due to the obstruction. This creatinine level may not change with an increase in GFR if renal dysgenesis has occurred. At 38 weeks, nephrogenesis is complete and will not affect the level of the creatinine.

Haycock G: Perinatal nephrourology, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 2, pp 14-26.

Question #109 ANSWER=A

Calyceal fistulae are an uncommon cause of urinary tract fistulae in renal transplants. They are more commonly seen in allografts with multiple renal arteries. They are usually caused by segmental renal infarction secondary to occlusion of a renal artery branch.

Gutierrez-Calzada JL, Ramos-Titus J, Gonzalez-Bonilla JA, et al: Caliceal fistula formation following renal transplantation: Management with partial nephrectomy and ureteral replacement. J UROL 1995;153:612-614.

Question #110 ANSWER=A

There has been some enthusiasm for androgen deprivation therapy prior to radical prostatectomy for patients with large Stage B2 (T2c) and small Stage C (T3a) prostate cancers. The theory was that this therapy would "downstage" the cancer and make the surgical procedure technically easier. While prostate gland size is decreased, ultimately, the PSA failure rate is unchanged.

Eastham JA, Scardino PT: Radical prostatectomy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 89, p 3080.

Question #111 ANSWER=C

Inadvertent injection of concentrated epinephrine can occur with the use of local anesthetics. Vasoconstrictors are used to provide a bloodless operative field. Any physician performing local blocks should be familiar with the treatment of their complications. The patient has primarily local effects of the injected epinephrine. These are best treated with the alpha-adrenergic antagonist phentolamine delivered subcutaneously at the injection site at a dose of 0.1 to 0.2 mg/kg. The patient should be carefully monitored for untoward effects of the epinephrine and the phentolamine.

Adams MC, McLaughlin KP, Rink RC: Inadvertent concentrated epinephrine injection at newborn circumcision: Effect and treatment. J UROL 2000;163:592.

Question #112 ANSWER=E

Parathyroid hormone mediates renal reabsorption of calcium in the distal nephron. More proximally in the nephron, calcium is reabsorbed in concert with sodium. Vitamin D influences calcium homeostasis primarily by enhancing small bowel absorption. Significant hypocalcemia stimulates renal calcium preservation by inducing parathyroid hormone secretion. Aldosterone mediates distal renal preservation of sodium in exchange for available hydrogen and/or potassium, and has no direct effect on calcium reabsorption.

Menon M, Resnick M: Urinary lithiasis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 96, pp 3239-3240.

Jenkins AD: Calculus formation, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 2. St. Louis, Mosby-Year Book, 1991, pp 403-443.

Question #113 ANSWER=D

Hypothermia and circulatory arrest is the treatment of choice for a renal tumor with this level of cephalad extension. This technique has several potential complications such as CNS or hepatic damage yet the most common difficulty associated with this technique is hemorrhage associated with platelet and clotting factor dysfunction.

Marshall FF, Dietrick DD, Baumgartner WA, Reitz BA: Surgical management of renal cell carcinoma with intracaval neoplasm extension above the hepatic veins. J UROL 1998;139:1166-1172.

Question #114 ANSWER=D

It is possible to document absence of a testis by demonstration of blind-ending spermatic vessels in the inguinal canal. If such evidence is unequivocal, as stated in this case, then no further imaging is necessary. There is no need to discourage football as long as a protective cup is worn. Advice about possible torsion and self-exam should also be offered. The Committee on Sports Medicine of the American Academy of Pediatrics recommends that patients with an absent testicle be allowed to participate in contact/collision sports if they wear a protective cup.

Committee on Sports Medicine and Fitness. AMERICAN ACADEMY OF PEDIATRICS: Medical conditions affecting sports participation (RE0046). PED 2001;107(5):1205-1209.

Question #115 ANSWER=D

On intravenous pyelography, medullary sponge kidney is characterized by the puddling of contrast material in ectatic papillary collecting ducts; the distal convoluted tubules are not dilated in this condition. It is not an inherited condition and may be unilateral in upwards of 25% of patients. Individuals with this disorder can develop renal stones and nephrocalcinosis. They can have a spectrum of metabolic abnormalities including hypercalciuria and hypocitraturia.

Glassberg KI: Renal dysplasia and cystic disease of the kidney, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 56, pp 1974-1975.

Question #116 ANSWER=C

Patients with von Hippel-Lindau disease are more likely to present with bilateral synchronous renal cell carcinoma than those with sporadic tumors. Results of nephron-sparing operations have preserved renal function in many patients and when complete tumor removal of all radiographically visible lesions is possible is the procedure of choice, often resulting in a prolonged disease-free interval. However, because of the multifocal nature of the tumors in VHL, these patients are at high risk for recurrence and must be followed closely.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 75, pp 2672-2731.

Question #117 ANSWER=B

Rupture of the corpus spongiosum and anterior urethra will be manifest by a perineal "butterfly" hematoma, limited by Colles' fascia. The corpora cavernosa, tunica albuginea, and posterior urethra are unlikely to be involved in a straddle injury. Posterior urethral injuries occur above the pelvic diaphragm are usually associated with a pelvic fracture, and not as a consequence of a straddle injury.

McAninch JW, Santucci, RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 105, pp 3707-3744.

Question #118 ANSWER=B

The patient's clinical findings are consistent with metabolic stone activity secondary to renal leak hypercalciuria. The most effective therapy for this is thiazide diuretics. The effect of thiazide diuretics may be blocked by high dietary salt intake or increased vascular volume.

Menon M, Resnick MI: Urinary lithiasis: Etiology, diagnosis, and medical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 96, p 3229.

Question #119 ANSWER=B

Tumor size and symptoms are useful predictors of the clinical course of angiomyolipoma. Most tumors less than 4 cm rarely cause significant symptoms. A recent review recommends annual CT or ultrasound studies for patients with isolated small tumors and semiannual follow-up for patients with tumors larger than 4 cm who are asymptomatic or mildly symptomatic. If the tumor grows, embolization or renal-

sparing surgery should be considered. This lesion has grown. Its location makes it less amenable to partial resection, and a nephrectomy would sacrifice significant normal parenchyma. Selective arterial embolization is minimally invasive and can prevent future expected hemorrhage of this lesion. Although cryoablation or radiofrequency ablation have been attempted in this situation, they are considered experimental.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 75, pp 2672-2731.

Question #120 ANSWER=C

The main arterial supply of the sigmoid colon is from the sigmoid and superior hemorrhoidal branches of the inferior mesenteric artery. The major collateral vessels are the middle and inferior hemorrhoidal arteries which arise from the internal iliac artery. They anastomose freely with the superior hemorrhoidal branches.

Evans RM, Reddy PK: Colonic neobladder, in Libertino JA (ed): RECONSTRUCTIVE UROLOGIC SURGERY, ed 3. St. Louis, Mosby-Year Book, 1998, chap 37, p 368.

Question #121 ANSWER=C

Scattering of the primary beam from the patient is the primary source of radiation exposure to the operator during endourologic procedures. For this reason, maximizing the distance between the operator and the patient during fluoroscopy is a very effective method of reducing exposure.

Preminger GM, Fulgham PF, Curry T: Fluoroscopic safety for the urologist. AUA UPDATE SERIES 1986, vol 5, lesson 29, pp 1-7.

Question #122 ANSWER=C

Biologic response modifiers have shown modest activity in patients with metastatic renal cell cancer. While lung metastases have responded better than other sites of metastatic diseases, the finding which is most predictive of a favorable response is performance status. Prior nephrectomy has not been proved to be a strong predictor of response to therapy.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 75, pp 2672-2731.

Question #123 ANSWER=B

Embryologically the prostate develops from the urogenital sinus during the third fetal month. The prostate develops from mesoderm to form the inner zone while the outer zone develops from endoderm. These zones form concentric rings around the prostatic urethra. Generally speaking the inner zone eventually develops benign prostatic hyperplasia (BPH) and the outer zone is where cancers later form. In younger patients the periurethral glands within the prostate are not prominent since BPH has not yet developed.

Partin AW, Rodriguez R: The molecular biology, endocrinology, and physiology of the prostate and seminal vesicles, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 37, pp 1237-1296.

Question #124 ANSWER=C

Alpha-mercaptopropionylglycine (alpha-MPG) is an oral agent, first introduced in 1968, which reduces cystine stone formation. Approximately 25% of the oral dose appears in the urine and, like penicillamine, participates in thiol-disulfide exchange with cystine, thus increasing the latter's solubility. Alpha-MPG appears to be as effective as penicillamine in reducing cystine excretion and significantly reduces the individual stone formation rate, while entailing less significant toxicity. N-acetylcysteine is not effective orally. Tham-E is only used for percutaneous dissolution. Acetohydroxamic acid inhibits bacterial urease and is not indicated for cystine stones.

Seftel A, Resnick MI: Metabolic evaluation of urolithiasis. UROL CLIN N AM 1990;17:159-169.

Question #125 ANSWER=C

Approximately one-third of patients on long-term hemodialysis develop cysts in end-stage kidneys, and less than 10% of this group will develop renal cell carcinoma. The patient in question has unilateral bleeding and no evidence of infection as a cause. Due to the increased risk of malignancy, right nephrectomy is recommended. A negative needle biopsy alone would not be sufficient to exclude tumor.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 75, pp 2672-2731.

Question #126 ANSWER=D

Cowper's glands are located on each side of the membranous urethra within the urogenital diaphragm. The duct of each is one inch long and passes through the urethral opening in the urogenital diaphragm along the posterior aspect of the bulbous urethra and opens into the posterior aspect of the bulb.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 2, pp 41-80.

Question #127 ANSWER=E

Perirenal hematoma following shock wave lithotripsy may occur in as many as 5-10% of patients. However, it is clinically significant in less than 1%. The hematoma is usually self-limiting. Subsequent absorption occurs over a 6-9 month period. Accordingly conservative therapy alone is all that is indicated unless the patient is hemodynamically unstable. Interventional therapy is not indicated at this early stage.

Knapp PM, Kulb TB, Lingeman JE, et al: Extracorporeal shock wave lithotripsy-induced perirenal hematomas. J UROL 1988;139:700-703.

Question #128 ANSWER=C

Relapse rate for patients with embryonal cell carcinoma, or malignant teratoma undifferentiated (MTU) in the British classification, is significantly higher than the other subgroups, with a failure rate of 40-50% in most series. Second highest was choriocarcinoma with a 33% failure rate, with teratocarcinoma having only a 7% relapse rate. Although the numbers are small, no patient with teratoma or yolk sac carcinoma has relapsed in Peckham's series.

Richie JP, Steele GS: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 81, pp 2876-2919.

Question #129 ANSWER=B

Testicular tubules, organized into 200-300 conical tubules, drain into 20-30 tubuli recti which enter the rete testis, a network of ducts in the testicular mediastinum. At the upper end of the mediastinum, the ductuli efferentes emerge from the testis to enter the head (caput) of the epididymis. The cauda epididymis is the most distal portion of this organ from the testis.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 2, pp 41-80.

Question #130 ANSWER=A

Acute renal failure after IVP may occur in 2 of 1000 diabetics as opposed to 0 in 100,000 nondiabetic patients. In addition, renal insufficiency and generalized atherosclerosis increase the risks of acute renal insufficiency related to the use of intravascular contrast. Theories of toxicity relate to direct toxic effects of the contrast media on the proximal tubular cells, ischemia from damage to the renal microvasculature, and hypertonicity of the contrast media causing nephrotoxicity. This risk may be reduced by hydration. Bilateral complete obstruction, renal vein thrombosis, and dehydration as causes for oliguria or anuria would be unusual in this situation.

Kellum CD, Fisher LM, Tegtmeyer CJ: Excretory urography, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby-Year Book, 1997, pp 77-89.

Question #131 ANSWER=D

Anaplastic seminoma has a greater metastatic potential and worse prognosis than classic seminoma. However, stage for stage, it has comparable response rates to classic seminoma. This patient has clinical Stage I disease and should be treated with external beam radiation therapy to the retroperitoneum.

Richie JP, Steele GS: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 81, pp 2876-2919.

Question #132 ANSWER=A

The most striking consistent change seen in the cryptorchid testis is decrease in number of germ cells due to failure of maturation of the germinal epithelium. Increase in peritubular fibrosis occurs from puberty onward. Very little difference is noted in the tubular basement membrane in the cryptorchid versus the normal testis. The delay in maturation of the Sertoli cells appears only in older children with cryptorchism, and decreased numbers of interstitial cells do not seem to be a feature of cryptorchism in general.

Schneck FX, Bellinger MF: Abnormalities of the testes and scrotum and their surgical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 67, pp 2353-2394.

Question #133 ANSWER=D

It is important to select the ideal puncture site for percutaneous access into a continent reservoir. Computed tomography or ultrasonography can be used to guide access to avoid injury to adjacent bowel.

Fuchs GJ, Patel A, Tognoni P: Management of stones associated with anatomic abnormalities of the urinary tract, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven Publishers, 1996, chap 49, p 1056.

Question #134 ANSWER=C

Involvement of the contralateral testis with intraepithelial neoplasia (CIS) occurs in 4-5% of patients with germ cell tumors. The presence of an atrophic contralateral testis appears to be a significant risk factor for this condition. While it is controversial, there does appear to be significant risk of developing tumor in the contralateral testis if left untreated. In an attempt to avoid bilateral castration, localized radiation was introduced in 1985 as treatment of CIS in the contralateral gonad. Radiotherapy eradicates CIS cells to prevent cancer development and to preserve sufficient Leydig cell function. 20-Gy has been shown to be highly effective and more effective than chemotherapy in this setting while preserving Leydig cell function in most patients.

Richie JP, Steele GS: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 81, pp 2876-2919.

Question #135 ANSWER=D

Neither the thoracic kidney nor the contralateral orthotopic kidney are predisposed to an increased risk for obstruction or any pathologic disturbance. They are typically asymptomatic except for position and the renal vasculature is normal.

Bauer SB: Anomalies of the upper urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 55, pp 1885-1924.

Question #136 ANSWER=A

This patient has a picture equivocal for primary hyperparathyroidism with hypercalciuria, serum calcium at the upper limits of normal and a high, but normal serum PTH value. A "thiazide challenge" would help to differentiate renal hypercalciuria from primary hyperparathyroidism.

After treating her with a thiazide diuretic for two weeks, one would expect her serum calcium and PTH to remain within the normal limits and her urinary

calcium to return to normal if she has renal hypercalciuria. If, however, the patient has true hyperparathyroidism, the patient would become overtly hypercalcemic and her serum PTH would also become elevated with no significant change in the urinary calcium excretion. One should bring this patient back to the office on thiazide therapy for repeat evaluation.

Preminger GM: Medical management of urinary calculus disease. Part I: Pathogenesis and evaluation. AUA UPDATE SERIES 1995, vol 6, lesson 5.

Question #137 ANSWER=D

The risk of testicular cancer in men with a history of cryptorchism has been adjusted downward in recent years to 1.1 percent with a relative risk of 4.7. Approximately 15 to 20 percent of tumors occur in a contralateral descended testis. Carcinoma in situ is present in 1.7 to 3 percent of previously cryptorchid testes and is postulated to originate within the fetal gonocytes. The correlation, if any, between failure of gonocyte transformation in infant cryptorchid testes and carcinoma in situ is unknown. The risk for subsequent development of testicular cancer in gonads that harbor carcinoma in situ is at least 50 per cent.

Richie JP, Steele GS: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 81, pp 2876-2919.

Question #138 ANSWER=B

The presence of autosomal recessive polycystic kidney disease varies depending on age. In older children, hepatosplenomegaly due to portal hypertension may be prominent and associated with renal interstitial fibrosis and cortical cystic disease. Autosomal dominant polycystic disease does not usually cause renal insufficiency at such an early age and the cysts occur throughout the kidney. Familial juvenile nephronophthisis and renal-retinal dysplasia are associated with renal cysts which are typically located in the medulla but the kidneys are usually shrunken and scarred. Renal cysts do occur in tuberous sclerosis but renal failure is usually attributed to multiple solid angiomyolipomas.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 56, pp 1925-1994.

Question #139 ANSWER=C

Although ureteral peristalsis does increase, and the ureters do dilate during pregnancy, neither of these physiologic changes are associated with decreased stone formation. During the third trimester of pregnancy, urinary citrate levels are known to increase

dramatically. Urinary citrate is a potent inhibitor of calcium oxalate crystallization, and should help protect against stone formation. Neither hypocalciuria nor hypouricosuria are routinely associated with pregnancy.

Swanson SK, Heilman RL, Eversman WG: Urinary tract stones in pregnancy. SUR CLIN NA 1995;75:123-142.

Question #140 ANSWER=D

With chest lesions, pure choriocarcinoma, and elevated beta-hCG, this patient has metastatic choriocarcinoma. This tumor, despite its small size, is very aggressive and can spread hematogenously as well as via lymphatics. Appropriate management is aggressive chemotherapy. Radiation does not have a place in management of this tumor.

Richie JP, Steele GS: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 81, pp 2876-2919.

Question #141 ANSWER=B

With complete ureteral duplication, the upper pole ureter is more likely to have an ectopic insertion outside the bladder. Reflux is more common into the lower pole segment. Reflux into the upper pole moiety alone occurs in children when the orifice is ectopic in the bladder neck or urethra. The ureter lacks trigonal support and has an inadequate submucosa tunnel. This situation occurs in less than 10% of cases of complete ureteral duplication. Ureteral duplication, incomplete or complete, occurs in 0.8% of the population. As many as 40% of cases are bilateral, but most of these are insignificant partial ureteral duplications. Bilateral ectopic insertion of the upper pole ureter with reflux into this moiety alone is very rare.

Snyder HM: Anomalies of the ureter, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby-Year Book, 1997, pp 2197-2232.

Question #142 ANSWER=C

Indinavir has been associated with crystalluria and renal calculus disease, especially with urine pH of greater than 5.5. Approximately 4-40% of patients taking indinavir have symptoms of clinical nephrolithiasis. Indinavir stones are the only ones that are not evident by KUB or non-contrast CT.

Steele BS, Carson CC: Recognizing the urologic manifestations of HIV and AIDS. CONTEMP UROL 1997;9:39-52.

Question #143 ANSWER=D

Lack of suppression after high dose dexamethasone usually indicates an autonomous adrenal source of steroids. The high level of ketosteroids makes ectopic ACTH less likely (hydroxysteroids are usually preferentially increased). Exogenous anabolic steroids should not elevate hydroxysteroids. Elevated urinary ketosteroid levels in a patient with Cushing's syndrome is highly suggestive of adrenal malignancy.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The Adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 101, pp 3507-3569.

Question #144 ANSWER=B

This mass is most likely a Wilms' tumor. The guidelines of the National Wilms' Tumor Study Group recommends radical nephrectomy of the involved kidney. The use of partial nephrectomy in the management of a Wilms' tumor located in a polar region is not part of the standard protocols.

Ritchey M: Pediatric urologic oncology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 70, pp 2469-2507.

Question #145 ANSWER=C

Fetal doses are highest for CT pelvis > CT abdomen > IVU > DTPA scan > KUB > MAG3 renal scan. CT pelvis is 25-80 mGy, abdomen 8-45 mGy, DTPA 1.5-4 mGy, MAG3 0.7 mGy and IVU 1.7-10mGy.

Biyani CS, Joyce AD: Urolithiasis in pregnancy. BRI J UROL 2002;89:811-818.

Question #146 ANSWER=B

Approximately 10-20% of patients who have bilateral adrenalectomy for Cushing's disease later develop pituitary tumors, almost always chromophobe adenomas (Nelson syndrome). Progressive hyperpigmentation, headache, and visual disturbances are due to the expanding adenoma that is shown by skull x-rays or CT scans of the sella turcica.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The Adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 101, pp 3507-3569.

Question #147 ANSWER=A

The diagnosis of teratoma of the testis can be suspected on preoperative ultrasound. This allows the surgeon to consider a testis sparing procedure. Prepubertal teratomas have a benign clinical course and can be managed with surgery only. Although only a limited number of patients have been treated with enucleation of the tumor, there have been no recurrences reported to date. Theoretical concerns include tumor seeding, incorrect diagnosis, or multifocal microscopic disease within the testis. However, frozen section diagnosis of teratoma is straightforward due to the characteristic histologic features of the tumor. In addition, a detailed review of 21 cases of prepubertal teratoma at the Armed Forces Institute of Pathology did not reveal evidence of multifocal disease or carcinoma in situ of the adjacent testis.

Ritchey, M: Pediatric urologic oncology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 70, pp 2469-2507.

Question #148 ANSWER=D

Recent concerns over the transmission of sexually transmitted diseases by donor insemination have led to the use of frozen donor sperm, which permits quarantine of frozen sperm with re-screening of donors. The price for this increased safety is a low per cycle pregnancy rate, largely due to decreased motility of frozen-thawed donor sperm. The number of insemination cycles required to achieve a pregnancy may increase, although the cumulative pregnancy rates appear to be the same as with fresh semen.

Goldstein M: Surgical management of male infertility and other scrotal disorders, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 44, pp 1532-1589.

Question #149 ANSWER=D

The superficial inguinal lymph nodes anastomose with the deep inguinal lymph nodes, which are located below the fascia lata. The other structures given are encountered in an inguinal lymph node dissection but do not serve to separate the superficial and deep inguinal lymph nodes.

Donat S, Cozzi PJ, Herr HW: Surgery of penile and urethral carcinoma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 84, p 2983.

Question #150 ANSWER=D

This patient has Klinefelter's syndrome which is characterized by small firm testes, varying degrees of impaired sexual maturation, azoospermia, gynecomastia and elevated gonadotropins. The fundamental defect is an extra X chromosome. The common chromosomal pattern is 47,XXY (classic form) or 46,XY/47,XXY. This disorder is the most common major abnormality of sexual differentiation with an incidence of 1 in 500 males. They usually come to attention after the time of expected puberty and often are diagnosed incidentally. Gynecomastia is dependent on the ratio of circulating estrogen:androgen. The risk of breast cancer is 20 times that in normal men, although the incidence is only about one-fifth that in women.

Diamond DA: Sexual differentiation: Normal and abnormal, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 68, p 2404.